ICL7502
PT7 ✕
You have a choice. Consider the alternative.
FERRANTI

COMPUTER WEEKLY

Data 100 involved in $95m write-off

DATA 100 and Sycor, the two terminal systems manufacturers taken over in 1978 by Northern Telecom of Canada, have failed so badly to live up to the expectations of their Canadian owner in terms of growth that the telecommunications manufacturer is likely to write off an estimated $95 million worth of goodwill carried on its balance sheet since the two acquisitions were made.

The goodwill is the difference between the actual amount paid for the two terminal manufacturers and their combined book values and it probably would have been written off over a very long period if Data 100 and Sycor, now run by Minneapolis-based Northern Telecom Systems Corp. were expanding rapidly.

But a NTSC spokesman in Minneapolis accepted reports by industry analysts in the US that his firm was effectively living off the existing base of Data 100 and Sycor customers and commented that this state of affairs was "not a bad thing inherently".

The spokesman also admitted that Data 100 and Sycor had been hit by a "mass exodus" of 17 executives after the takeover.

Barry Eames, managing director of NTSC's UK operation which is still called Data 100, admitted that the markets for Data 100's key-to-disc systems and remote batch terminals were "flat". He also pointed out that NTSC would be introducing a family of new general purpose DP and office systems.

Last year Eames outlined Northern Telecom's "intelligent universe" concept that marries its data communications expertise with other information technologies.

On the question of Northern Telecom's continued support for NTSC the president and chief executive officer of Northern Telecom, Walter Light, said: "Northern Telecom will continue to work hard at establishing NTSC as an aggressive competitor in the office systems market."

to ensure first class service, top quality and total dependability
Contact
formdesign
manufacturers of High Quality COMPUTER FORMS
Rush Deliveries Are Our Speciality
NATIONAL WORKS
HALL STREET, DUDLEY
WEST MIDLANDS
DUDLEY (0384) 213081

NEWS IN BRIEF

Prestel set for Premier

THE Prime Minister has had a Prestel set installed in her political office at 10 Downing Street after seeing the service demonstrated during her visit to Lagien last month (CW, June 12).

Declining to name the supplier since the set was chosen at random, a spokesman for the Premier said there was a need to keep up with developments. "It is like buying Who's Who or the Encyclopaedia Britannica: you buy it knowing it is going to be useful without necessarily knowing how much you will use it," he said.

Director

DEREK ROWE, formerly managing director of Abacus Computers, is to be technical director of Abacus Data-Type, the firm formed from Abacus Computers following its acquisition by the Data-Type group (CW, July 24).

Star makes good

MICHELLE PROBERT, edged out of the Olympics 400 metres final by Linsey Macdonald last Saturday, only managed third place in last year's Computastars final. This year's final will be at Alexander Stadium, Birmingham, on September 13. Tickets from Gordon Cairns, 117b High Street, Croydon CR0 1QG.

Third takeover

GEEST Computer Services has taken over Ipswich Computer Services from the Jackson Group. It employs 60 staff, has a turnover of £¾ million and is the third bureau to be acquired by Geest during the past 12 months.

Red light for traffic forecasting project

A COMPUTER-based nationwide traffic forecasting project on which the Department of Transport has spent nearly £7 million over the last five years has failed in its aim of producing accurate figures for trunk road planning.

Called the Regional Highway Traffic Model, RHTM, project, it used modelling software developed and run by the SIA bureau.

The project and its shortcomings are described in detail in a report just published by the Standing Advisory Committee on Trunk Road Assessment which concludes, "We do not think that the problems encountered in the RHTM project are likely to be easily solved in the near future."

SIA has carried out traffic modelling work for more than ten years, but an SIA spokesman said that the RHTM project was far more complex than anything previously tackled. The software had to process matrices based on 3,600 zones covering the whole of the country so that the total number of possible zone to zone journeys was about 12 million.

Data for calculating the number of daily journeys made by motorists was collected from two independent sources — roadside interviews and talking to people at home — and the model generated widely different results from the two types of data. Differences of 30% were not uncommon and in one case the difference was 120%.

The Department of Transport pointed out that the RHTM project had been initiated by the previous Labour government because the national road programme was much bigger in the mid-1970s than now.

The present Transport Minister, Norman Fowler, said that he accepted the conclusions of the report on RHTM, adding that forecasts would now be carried out on a local and regional basis.

The intention is to make as much use as possible of the RHTM data which cost nearly £2 million to collect. Processing of the data by SIA cost another £650,000. Expenditure on the services of consultants came to £2.5 million.

If you want CIS Cobol...

IF you want to use CIS-Cobol on a Texas Instruments' 990 computer system, there's only one place to get it. OEM distributor Cinsal Computer Systems based in Attleborough, Norwich is in the final stages of an agreement with Micro Focus to become the sole UK distributor for TI CIS-Cobol.

Texas Instruments has its own Cobol and originally brought CIS-Cobol from Micro Focus for internal use (CW, March 20). It was chosen because it was the only one to fit the complete range of 990 systems from Model 1 to Model 8.

Nick Ashton, sales director of Cinsal has realised the potential of this for TI users in the UK, and he will be using the UCSD Pascal operating system with it.

Cinsal hopes to supply CIS-Cobol to users and to other TI OEMs by September for £426. The Forms 2 screen handling device will cost £100.

Freedom of Information law by December

CANADA looks set to have a Freedom of Information law by December, following several false starts brought about by the recent rapid changes of government. Pierre Trudeau's Liberal administration has introduced a Bill that is far more revolutionary than previous ones (CW, November 8 1979) providing for judicial review of all withholding of government documents with no exceptions for such areas as defence and national security.

An attempt is to be made to avoid conflict between the Freedom of Information provisions and those already existing for privacy by removing the latter from the Human Rights Act and incorporating them in the new Act.

A register of government data will have to be published and updated twice yearly. From this citizens will be able to choose what files they want to see and demand them. To prevent disclosure a minister will have to convince a court that it would not be in the public interest. Exceptions specified in the Bill cover police intelligence, information on individuals, and trade secrets.

By placing the ultimate decision on disclosure in the hands of the courts the aim is to make the decision completely non-political.

Plan to boost Euro air control

EUROCONTROL, the European organisation for the safety of air navigation, may extend its operations to handle all air traffic control over the Benelux countries and the northern part of West Germany.

If the plan goes ahead it will involve a major expansion of the Eurocontrol computer centre at Maastricht in the Netherlands which currently houses three IBM 370/155s and handles only upper air control for Belgium, Luxembourg and North Germany.

The fact that the Maastricht centre is not used by the Dutch even for upper air control over their own territory underlines the failure of Eurocontrol to be accepted by the States that belong to the organisation as the agency for controlling upper air space over all their territories. The UK control centre at West Drayton, Middlesex, for example, handles upper air space control for this country on behalf of Eurocontrol rather than entrusting this task to the international organisation, even though the UK is a Eurocontrol member.

The reluctance of West European States to entrust air traffic control to a unified and integrated West European system was the subject of a debate in the European Parliament at Strasbourg on July 10 when Parliamentary Transport Committee chairman James Janssen van Raay tabled a motion calling on governments of the countries that belong to Eurocontrol to give the organisation a new lease of life.

Eurocontrol was set up in 1963 and the convention signed then by the member countries expires in February 1983. If one of the member countries decides to opt out, and that decision must be made before February next year, Eurocontrol will probably have to be killed in 1983. Apart from Maastricht it would probably mean the running down of the Eurocontrol centre for Southern Germany at Karlsruhe which houses two IBM 370/158s. There are also centres in Ireland with CII-HB Iris machines.

Stake in Ontel

FOLLOWING the 25% stake it took in Modcomp last year, floundering West German electricals giant AEG-Telefunken has paid $3.5 million for 10% of Woodbury, New York programmable display manufacturer Ontel Corp. Ontel expects turnover of $30 million this year, up from $23 million last year.

$400 viewdata terminal

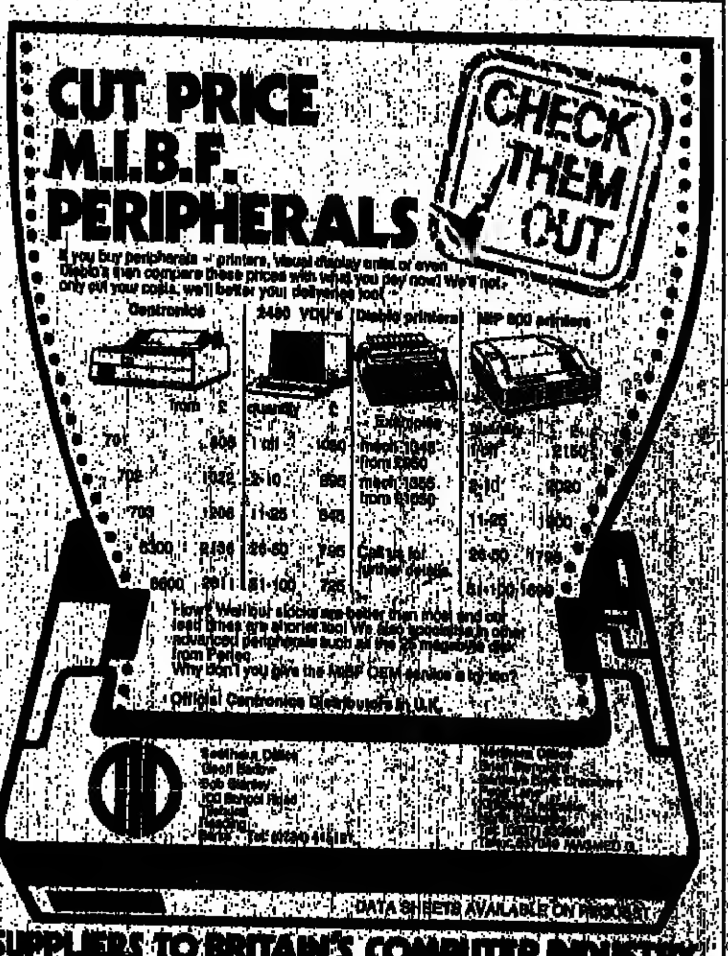
A VIEWDATA terminal for $400 is to be launched by Tandy in the US in November both through its retail chain and through Compuserve, the bureau which is starting a news service accessible by personal computers (CW, July 24).

The terminal, called Videotex, was developed for the Green Thumb project, in which the US Department of Agriculture and the Weather Bureau brought together Tandy, Motorola, Western Union and the software division of aircraft company Grumman to run a trial information service for 200 farmers in Kentucky.

The Videotex terminal contains 4K of RAM and can load up to eight pre-selected pages of text and disconnect the line automatically. In future the RAM may be expanded to 16K but Tandy has no plans to interface the terminal to cassette recorders, printers or other peripherals.

The price is expected to fall to $200 in about two years. The device has a full keyboard with 53 keys and it looks like an enlarged TRS-80 personal computer, but it is not designed to run telesoftware. It will connect directly to both the telephone line and a standard television as it has the necessary modem and modulator built in.

The regulation passed by the Federal Communications Commission which allows a higher amount of radiation than previously to escape from television attachments is to come into effect in January, but [illegible] such as this are granted [illegible] waiver from the old rule [illegible]



DIGICO COMPUTERS
the best intelligent terminal
DIGICO's PLUG COMPATIBLE ICL 7502 REPLACEMENTS ARE 12 — 16 WEEKS DELIVERY
The DIGICO Advanced Telecommunications Processor (ATP) with full 7502 software includes the following features:
* Full local processing including Data Entry Package
* Local peripherals without reducing VDU connections
* Simultaneous local processing and mainframe link
* Expansion to 2,000,000 bytes primary store
* Expansion to 300,000,000 bytes disc store
* Simultaneous multi-mainframe linking
* Simultaneous batch and interactive linking
* Full multi-programming Executive operation
After 14 years of producing 4 generations of powerful processors, DIGICO is setting new standards of price/performance for our industry. This all British company has over 1,000 systems world wide, is represented in 13 countries and is growing at over 40% per annum.
start small and grow large with digico

Printed in Great Britain by QB Limited, Sheepen Place, Colchester CO3 3LD, and published by IPC Electrical-Electronic Press Ltd, Dorset House, Stamford Street, London SE1 9LU.

start small and grow large with digico
If you are in the business of profitable, successful computer installations then you're in the same business as DIGICO.
Telephone Stevenage 4381

COMPUTER WEEKLY
Number 719 Thursday, August 14, 1980 Price 20p

FIXED COST TIME-SHARING
TIME-SLOT – the new prime based service offering unlimited computing for a fixed cost especially for accounting and marketing applications.
Peter Merrick ASSOCIATES
'Phone 01-688 6047 Croydon

Government delay on PAYE system could hit ICL

NEARLY ten years after the Heath government killed a project to set up regional batch processing centres for PAYE, the present government has put on hold the much publicised plan for 12 big online systems linked by a regional network.

The outcome could be that local tax offices will be equipped with their own small systems to avoid the risks involved in the big network approach.

The government has also avoided the painful decision of whether to make ICL the main supplier for the PAYE project under the single tender policy and such a decision may never have to be made because the policy is due to be scrapped at the end of the year under the EEC and GATT rulings. In any case an approach involving small machines would not be covered by the policy.

The government's decision was announced in a written answer from the Chancellor of the Exchequer, Sir Geoffrey Howe, to Eric Cockeram (Cons, Ludlow) who wanted to know if the government had yet reached a decision.

Referring in his answer to the big network approach the Chancellor said, "Despite the possible advantages of such an approach experience shows that it carries with it a high risk of unforeseen problems, so that the expected savings and benefits are often not achieved . . . The government have therefore put in hand as a matter of urgency a study of alternative approaches which would diminish these risks and offer a great opportunity of satisfactory development as the system evolves."

Sir Geoffrey also pointed out, "The government continues to recognise the importance of the maximum feasible involvement of UK companies and of ensuring a high UK content in the system."

ICL and IBM both reacted to the Chancellor's statement immediately. ICL said, "We are confident that the technical proposals we submitted provided a satisfactory computer system to meet the Inland Revenue's requirements. We are also confident that if these (requirements) are changed we have the technical capability and products to meet any different approach which emerges. Because ICL's product design decisions are made in the UK they will be responsive to any new requirements."

Tony Cleaver, director of IBM's Data Processing Division, stated, "We are pleased that the government has not allowed itself to be rushed into a decision on this contract . . . and our hope is that the government will eventually decide to open the tendering for the contract. . . ."

The one big advantage of the national network approach first outlined in CW early last year (CW, March 29, 1979) would have been online access to records anywhere in the country relating to any individual.

● See Computerview, page 2

Briefing

Hitachi leads in 3380 race

FIRST company to respond to IBM's new high-capacity 3380 disc drive is Hitachi from Japan, which has announced its H-8598 2.5 gigabyte drive for delivery in the second half of 1981, only a few months after IBM's scheduled first quarter ship. Claimed to be "almost compatible" with the 3380, the new drive uses conventional but improved read-write head technology rather than the thin-film heads used by IBM.

It is claimed to match the three-megabyte per second transfer rate of IBM's disc, and high-speed channels will be offered with the Hitachi M-180 and M-200H mainframes. It will be about 20% cheaper than IBM's device, and offered to IBM users.

Tax incentives

SINGAPORE is considering tax incentives which would make it more attractive for companies in other countries to get their software developed in the Island State.

84 Mbyte version

BY increasing the packing density on its existing 8in disc drives, Fujitsu is to introduce 84-megabyte and 48-megabyte versions for delivery in April in the US. Samples will be available in December and they will cost $3,800 and $3,200 respectively in quantities of 100.

Motorola in Japan

MOTOROLA is planning to set up an integrated circuit manufacturing plant in Japan within five years to specialise in MOS technology. This follows announcements that IBM, Fairchild Camera & Instrument and Intel are also planning to set up there.

Buyer found

A PROSPECTIVE buyer for Isher-Woods' dealer support/maintenance subsidiary, Rile Computer Systems, has been found. The fate of the company was due to be decided at a meeting of the creditors earlier this week.

IDPM recruits

TED Cluff, secretary-general of the Institute of Data Processing Management, said this week that over 40 new corporate bodies had affiliated to the Institute. They include East Ham College of Technology and computer dealer Reliance Computer Group of Sheffield.

First UK customers

UNIVAC'S London Customer Support Centre and the Science Research Council's Rutherford and Appleton Laboratories at Didcot, Oxfordshire, are the first UK customers for the Calcomp Model 81 colour graphics system announced earlier this year. The Model 81 can produce instant [illegible] from a colour [illegible]

High-level micros threaten software straitjacket

by Eileen Stainer

MOTOROLA is to answer doubts about its commitment to follow Intel and Texas Instruments into hardwired high-level software on 16 and 32-bit processors with a firm announcement this autumn. Its plans also include fast cache memories on chip, writable control stores, virtual memory generation, fast context switching and dual port RAMs.

The company is expected to emphasise firmware-encapsulated high-level software following its competitors' pre-announcements over the past two months.

This development will tend to lock users into vendor-supplied microsystem software in exactly the same way as IBM users are locked into IBM operating systems and software. Motorola acknowledges that this is the direction the whole industry is taking.

According to Motorola, the 68000 is the start of a complete new generation of processors that can be extended to 32 bits. It was designed as a complete break from the 6800 family, requiring a new range of development tools including the EXORmacs.

At the silicon level it was built with a 32-bit chip in mind and it is fully compatible with 6800 peripherals. Motorola now claims to be able to make as many 68000s as the market needs, and the delivery time for EXORmacs is only six weeks.

But this leading company has no desire to fall into the "pre-announcement" trap that Intel

● Turn to back page

Training town hall staff

LOCAL government officers with no previous experience of computing are to be trained as system analysts under a scheme funded partly by the Manpower Services Commission and partly by their employing authorities. The scheme, organised by the Local Authorities Management Services and Computing Committee, will deal with mainstream data processing, micros, and office systems, and is intended to create more computing capability in the country as a whole, according to Douglas Denyer of LAMSAC.

Three repeats of the 10-week course are planned, with 15 to 20 students on each, to take place at the Polytechnic of Central London. The MSC will contribute £800 and the local authority £780 towards tuition costs.

● Our picture shows (left to right): Douglas Denyer of LAMSAC, Peter Webb and Christine Porter of the Polytechnic of Central London, and Ken Davis of LAMSAC.

Language offers big savings to ICL users

AN in-house timesaver written to avoid repetitive coding has been developed into a range of products which may save ICL users from heavy investment in operations and development enhancements.

And the potential of the Macro Expansion Language is not limited to the ICL hardware on which it was developed, according to co-designer Melvyn Morris, of Forward Computing.

Flexible

"It is a flexible software generation language and can enhance any software. It was designed to be machine transportable and we're already looking at IBM and Univac hardware."

Forward is now selling the MEL products singly or as a range to ICL 2903/4, 2900 DME2/3 and ME29 users. The particular products are aimed at saving in JCL operation, providing online job control, and cutting out much of the donkey work from Cobol development, although the development aid also applies to ICL's assembly-level language Plan.

The Macro Expansion Language used to develop the ICL products is based on the principle of replacing whole sets of instructions by one-liners which, "invisibly" to the writer, then pull in the pre-composed code at compilation.

● See Software File, page 7

Top-end 5900 from Burroughs

A NEW series in the Burroughs top-end family of mainframes is under wraps in the US — and takes up a 5X00 number, which has not been used since the old B5500 was phased out almost a decade ago.

The new machine, to be called the B5900 is a low cost machine in the B69-7900 family of top-end general purpose mainframes.

Burroughs' two other families are the B90-900 [illegible] range of small business computers and the mid-range B29-39-4900 medium-scale range. Although there is substantial commonality between the operating systems — or Master Control Programs as Burroughs calls them — and the languages, ancillary system software varies between the three families.

US sources say the forthcoming B5900 will offer the performance of the B6800 at about $200,000 making it a low cost entry into the big systems line.

CONTENTS

Computerview on tax system	2
Letters to the Editor	2
St Gobain-Olivetti link-up?	2
£30,000 for schools	3
Gill's Mythology	4
Focus on stress	4
Alistair in Computer Land	6
Puzzler	6
Software File	6/7
Fresh attack on micro market	8
Micro News	9
People and Events	10
The Nice Symposium	11
Op Spot	13
Computer Automation recovers	14
Indian firm moves to Europe	16
Electronic office	17
EEC cash for small firms	40
JOBS: PAGES 20-39	

STORAGE TECHNOLOGY
Storage Technology announces the 8360
A high performance, high-speed access drive available now.
Highlights include the following:
* 18 milliseconds average access time.
* 317.5 Mbs per actuator.
* 1.198 Mbs per second data rate.
* 3350 plug compatible.
* Dual port or string switch are standard.
* Easy upgrade to 635 Mb capacity.
* Attaches to STC 8000-2, 8000-4 or 8880 controllers.
* Available within 60 days of order.
Another high performance product from the high performance company
For further details please contact Clive Waite at:
Storage Technology Limited,
2 Rubastic Road, Southall, Middx UB2 5LL.
Telephone: 01-571 0062 Telex: 263020

COMPUTER WEEKLY

Vol. 28 No. 718
Thursday, August 14, 1980

Editor
Simon Timm 01-261 8033

Advertisement Manager
Harry Hutson 01-261 8358
01-261 8503

Class Ad Manager
Brian Durrant 01-261 8887

Publishing Director
Dr J. A. G. Thomas

Editorial Director
Chris Hipwell

IPC Electrical Electronic Press Ltd,
Dorset House, Stamford Street,
London, SE1 9LU.
Telephone 01-261 8000.
Telegrams/Telex 25137 BIOPRS G

Branch Offices
Birmingham, 202 Lynton House
Walsall Road, Birmingham 22B
Telephone 021-356 4038

Manchester Grove House,
Skerton Road, Old Trafford
Manchester M16 0WL
Telephone 061 872 8861

New York 205 East 42nd Street
New York NY 10017
Tel (212) 867 2080 Telex 421710

Published weekly on Thursday

Registered at the Post Office as a newspaper. Price per copy 20p

IPC Business Press Ltd 1980.

CIRCULATION INQUIRIES
Requested readership: 01-637 3636
Subscriptions: 0444 59188

EDITORIAL		
Keith Jones	281	8344
Tim Palmer	281	8031
Claire Gooding	281	8303
Rory Johnston	281	8028
Eileen Stainer	281	8808
Bernard Allan	281	8038
Donald Kennott	281	8718
Mike Merples	281	8042
Don Mitchell	281	8042
Chris Yousst	281	8843
Nancy Pocock	281	8843
Julia Cotterill	281	8843
ADVERTISING — Display		
Chris O'Hea	281	8888
Steve Bass	281	8002
Ian Carter	281	8108
Xenia White	281	8283
Manchester Harry Alkon	061-872	8861
Birmingham Ken Parrott	021-358	4838
ADVERTISING — Classified		
Chris Prior	281	8028
Ken Walford	281	8019
Ian Faux	281	8087
Neil McDonnell	281	8004
Philip Kirby	281	8098
Denise Smith	281	8454
Julia Hatherford	281	8002
Kevin McOwen	281	8002
Manchester Owen Kelly	061-872	8861
Birmingham Vic Sharpe	021-358	4838
Production		
Ray Kelly	281	8016
Steve Robinson	281	8878
Peter Bagle	281	8815

Computer Weekly has a circulation each week of over 90,000 including the highest fully-audited circulation in the UK.

ISSN 0010-4787

COMPUTERVIEW

Taxing time for ICL

SIGHS of relief were audible over Putney last Friday when news came through from the Commons that there was to be a rethink of the whole basis of the proposed Inland Revenue PAYE computer system. The feeling was akin to getting keyed up to give the speech for the first time at the annual ball, only to hear that it was now to be a barbecue and no speech would be necessary after all.

As the plan stood, ICL was set up to come out the loser either way. If the contract went to a US company, ICL's standing in its foreign markets would take a serious knock, while if it won the contract, it was likely to turn out to be a poisoned chalice: a project of that scale, and one so exposed to the spotlight of parliamentary and public scrutiny, was bound to run into problems at some stage.

ICL's image has been dented by the Swansea Drivers and Vehicles Licensing Centre fiasco, even though the company did nothing apart from supply the hardware.

Perhaps the strangest aspect of the case is the widely repeated statement that had the contract been given to IBM, everything in the garden would have been lovely, the system would have come in on time and worked perfectly. Has nobody in the Inland Revenue Department, the Treasury or the Department of Industry spoken to the Italians?

In Italy, the Finance Ministry began implementation of a nationwide computer system in 1971. This was to allocate a code to every taxpayer, so that it could be applied to his tax return when it was entered via a terminal. It was also to handle individuals' liability to value added tax.

The system was based on Olivetti terminals and IBM 370/168 mainframes. Four years later, the project collapsed.

IBM's contract was terminated, Italsiel, Italy's largest software and systems house was called in, and the system was completely redesigned and the IBM hardware was replaced with machines from Amdahl.

It is likely that more blame has been attached to IBM for the failure of the project than the company deserves; more relevant is that it underlines the fact that ambitious computer projects of this kind have a habit of going wrong — and if IBM had been given the Inland Revenue that would hardly constitute a guarantee of success.

The decision to send the designers back to the drawing board has been seen as one favouring ICL; the government is saying that it wants as high a UK content in the system as possible, with the maximum [illegible] involvement of UK companies.

Certainly terminals manufactured in Greenock [illegible] Croydon will have a high UK content, and IBM, [illegible] roughs *et al* will claim to be UK companies of [illegible] standing.

It is intended that the new studies be completed by the end of the year, when the government's single [illegible] procurement rules favouring ICL are due to run out.

Particularly ironic is the fact that the new studies [illegible] likely to produce a much more decentralised system with a computer in each tax office; it is unlikely [illegible] there will be many, if any, large computers in the system. Since the single tender rules come into effect only [illegible] the requirement is for a machine of one Atlas power [illegible] above, they will not apply. A government decision [illegible] give a large part of the contract to ICL will be seen [illegible] a simple following of rules laid down by the Labour government in 1968 and consistently adhered to by governments thereafter, but an overtly political act.

There is a neat way round the political problem.

The computer system is sought in part to ease the difficulty of applying unexpected changes in the [illegible] system to a given mass of data quickly. It seems likely that a significant and useful role could be played in [illegible] a system by CAFS, the ICL content addressable [illegible] store. Since no other company has such a product, [illegible] government would be in a position to give the contract to ICL without fear or favour.

LETTERS to the EDITOR

Computers *can* be creative

EITHER I do not understand Donald Michie's use of the terms "knowledge" and "information", or he is wrong, or both. (Privateview, CW July 24, 1980).

In 1967 I wrote a program that composed music which won a prize at the IFIP Congress the following year in Edinburgh.

The program centred on a routine to generate pseudo-random patterns, which was used in a recursive kind of way to set parameters to drive the routine to generate values to set parameters to drive the routine to generate values, and so on.

The last round of values were passed via papertape to computer controlled electronic music equipment and determined the pitch, loudness, timing and tone colour of notes.

I devised this mechanism, but its results were entirely surprising to me. I do not see that the information which the tunes and structures of the piece made manifest was the same information that I put into the program. Nor was it knowledge — that is what I gained from listening to the results: knowledge about the procedure. The program generated original information.

Computers *can* be creative.

ALAN SUTCLIFFE
Wokingham,
Berkshire RG11 1SL

Ideas are old hat

THE letter from Kirk Gee (CW, July 24) introduces an apparently new piece of jargon "Open Systems Interconnection".

The jargon may be new, but the ideas, as usual, are old hat.

IBM was there, over 10 years ago, with the first concepts of SNA (Systems Network Architecture). Despite criticism over the years, it appears that SNA already more than satisfies all the standards suggested in Gee's letter.

Although I would always support movements for standardisation, surely it is a little late to attempt to duplicate research that has been exhaustively performed by others.

S. J. CURTIS
Eastleigh,
Hants

Simple approach

YOUR correspondent Robert Worden (Letters, June 24) complains that your previous headline "Relational Databases Just Around the Corner" is misleading because it overlooks the launch eight months ago of Logica's Rapport DBMS.

From information available, Rapport seems a simple and economical approach to DBMS which is also very portable. But it cannot claim to be in the van of relational DBMS. If the headline is misleading, it should be the authors of, for example, Honeywell's Multics relational DBMS who should complain. And there are other systems which have as many relational features, eg Inquire, which [illegible] perhaps more wisely [illegible] their claims.

If those users who would like to have a relational join facility in their query language [illegible] "purists" who "will have to wait a few years for the system of their dreams", then they may well be looking for a [illegible] DBMS from Rapport.

Or maybe the join facility in Rapport is "just around the corner".

ROGER M. TAG[illegible]
Little Chalfont,
Bucks

DHSS approach to the problems of file security

I HAVE followed with interest Owen Hanson and Norman Revell's informative series on Advanced File Design in Computer Weekly, in particular Part 14 dealing with the problems of file security. In this they describe "online input/fast batch update" as a method that combines the security and performance benefits of batch processing with the facility of holding relatively up-to-date information on file. This is, in fact, the general approach adopted within the Department of Health and Social Security/Department of Employment "Nubs" computer system which provides an online service to some 600 unemployment benefit offices throughout England, Scotland and Wales, and currently handles claims to benefit from approximately 1½ million unemployed.

In that system, however, the basic approach has been developed and extended to overcome the problems identified and the "two-bucket" arrangement replaced by a single serial disc file acting as an input "well". The file is controlled by input/output pointers, maintained by the programs accessing it.

In this way, the online process may independently service the network and write incoming data to backing store, updating the input pointer, "A", each time a complete block/bucket is transferred and is thus available to the batch update run. The latter similarly maintains an output pointer "B", indicating its progress through the file, and by comparison with the input pointer, can establish when it has effectively "caught-up".

I accept that both the basic method and the variation we have implemented suffer the disadvantage that with system responses to terminals being generated at two levels, a short time may elapse before those from the batch update program are transmitted. The balancing advantage we would claim for this approach in the context of the National Unemployment Benefit System is that while sufficient processing power is normally available to enable the online and batch update elements of the system to remain in step, the file provides a flexible link between these processes and confers the ability to cope with unexpected peaks in daily workloads, without affecting input from terminals.

In the event of failure in the batch update program or files, the online data collection service may be maintained.

V. C. SEENEY
Senior Systems Analyst
Unemployment Benefit Project
Department of Health and Social Security,
Reading, Berks.

THE EDITOR welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication.

1984 and all that . . .

THIS week's example of the strange things people say in the media about computers was sent in by G. W. Hart of Orpington, who wins £5.

These computers (Honeywell 6000s at the US Air Force) process information in what is called "serial" or "sequence" modes. They work [illegible] one step at a time, relying on patterns of intricate, preprogrammed [illegible] [illegible] can perform many steps simultaneously [illegible] from the relevant parts of a [illegible] while [illegible]

Modata

OVERPRICED COMPUTERS INADEQUATE PERSONAL MICROS?

Modata supply Dealers and OEMs with competitively priced Single and Multi-User [illegible] Reliable Floppy and Hard Disk storage [illegible]

WHY NOT FIND OUT MORE?

Wilkes Computing

we have digital Terminals Available

LA 34 DECwriter IV
- convenient desk top design
- 30 char. sec. terminal
- Full 128 ASCII char. set
- low price

Wilkes Computing
Tel: (0272) 25921 Telex 449205

Two Pi quits race, leaving a clear field for Elbit

TWO PI has finally acknowledged that it is out of the race to provide the basis of Nixdorf's entry into the medium-scale IBM-compatible systems market, leaving the field clear for Elbit of Israel with its Anat machine.

It appears that one sticking point in the Nixdorf-Two Pi talks was that Nixdorf wanted to build some of the systems in West Germany — something Elbit had already conceded in principle, provided the terms were right (CW, July 3).

Two Pi is reported to have shipped over 100 of its AMD 2901 based V32 processors, the majority to National CSS which sells them on as the NCSS 3200 with proprietary operating software. Two Pi is still looking for a single vendor for its systems throughout Europe.

Meanwhile in the UK, Elbit has launched a new version of its DS 2000 VDU, which features the full extended APL character set as a switchable option.

The APL version of the VDU was developed by an Elbit engineer in Haifa, and pressure from the UK managing director and sales manager when they happened to spot it on a visit to Israel in June persuaded the parent to assign high priority to the project.

Showing that response times can be commendably short at Elbit, the display is on the UK market only two months later.

The new DS 2000 APL terminal from Elbit. The DS 2000 VDU will also form the basis of an Elbit microcomputer, due for launch shortly.

£30,000 grant to aid computer teaching

AN information service for schools to help in their teaching about computers is to be set up by Microcomputer Users in Secondary Education with a grant of about £30,000 from the Department of Education's micro education fund.

A teacher is to be appointed full-time to man the service, and research assistants' posts are also to be set up to extend MUSE's software library and promote software transfer between machines.

This is the second injection of money in the DES £9 million programme, the first being a teacher training project in the West Midlands (CW, July 31). Owing to the Department's budgeting schedules, some of the money has had to be spent in advance of the appointment of the programme director, which is expected in the autumn.

Attacked

The information service will probably be based at a school in Birmingham and will be run by one seconded teacher and a secretary. Inquiries from schools on such matters as how to start up computer courses will be dealt with, and fact and information sheets will be compiled.

The DES' choice of members for the national programme advisory committee (CW, July 31) has been attacked by the National Union of Teachers as "unrepresentative". The union has complained to Education Secretary Mark Carlisle that while there are two teachers from independent schools on the committee, there is no state school teacher. Thus there will be no understanding of the problems faced by state schools, particularly those that are less academically oriented, a spokesman said.

There is an officer from the Inner London Education Authority on the committee, Derek Esterson, but he is not a practising teacher, the union points out.

The DES has replied that the committee was never intended to be representative, and needed to be kept small.

BASF competes Hitachi deal— St Gobain, Olivetti to join forces?

AFTER clinching a deal to sell the Hitachi M-170 processor in Europe (CW, July 3), BASF has now signed an agreement covering the biggest IBM compatible Hitachi machines, the M-180 and M-200H, the latter with a rating of about eight million instructions per second in its single processor form.

Meanwhile Olivetti has denied reports that it may be killing Olivetti Computers, the division that sells the big Hitachi machines in competition with BASF as well as with IBM itself.

Unchanged

Olivetti in the UK said that there was "no foundation" to the reports, while an Olivetti spokeswoman at company headquarters at Ivrea in Italy said that the story in the Italian newspaper from which the reports originated was "typical of Italian journalists". She added that the plan for an Olivetti Computers office in the UK by the end of the year was unchanged.

St Gobain Pont-a-Mousson, the huge French industrial conglomerate that took a 20% share of Olivetti earlier this year, has its own plans to sell Hitachi machines in Europe (CW, August 7) and a merger of its own planned Hitachi marketing operation and Olivetti Computers could be on the cards. St Gobain has a lot more money to put into new ventures than Olivetti.

Olivetti's reluctance to say when Olivetti Computers will open offices in France is a possible indication of behind-the-scenes negotiations with St Gobain. There has also been no definite promise of any office in West Germany although this may be the result of the deal between Hitachi and BASF.

As expected, BASF will sell the Hitachi M-180 and M-200H as the 7/70 and 7/80. The M-180 will be offered by BASF as three upgradeable models, the 7/70N, 7/70 and 7/70AP. The same machine is sold by National Advanced Systems as the AS/7000N, the AS/7900 and the AS/7000DPC and by Olivetti as the OH5520, 5530 and 5545.

Olivetti Computers sells the M-200H as the 5560 while National has no agreement yet with Hitachi on the 8 mips machine.

Energy-saving sailing ships controlled by computer are no longer just a conservationist's dream. In Kure, Japan, a small (888 ton) oil tanker has just been launched that has 12-metre high panel sails (shown folded) on its masts to help reduce fuel consumption by 80%. A microcomputer adjusts the setting of the sails according to wind speed and direction.

TOPS scheme to convert operators into programmers

A COURSE under the Manpower Services Commission's TOPS scheme to convert computer operators into programmers is to start for the first time in October, run by Allen D'Morias and Associates in Harrow.

The students' previous computer experience will enable the course to last eight weeks instead of 18 as with the current TOPS programming course, and there will be no period of working on a computer site.

Cobol and Basic are the languages to be taught.

D'Morias is appointing a full-time placement officer and in the view of Ron Hunnibal of the company, graduates of this course should have good job prospects through the combination of their training and their experience.

Memories are short

IBM's memory ambitions have outrun its capacity for a second time. The company has announced in the US that some System 38s will be shipped with 16K memory chips rather than the 32K devices originally planned.

Last year the company announced that [illegible] 4341s in the [illegible] shipped with [illegible] rather than the [illegible] with which it was [illegible]

Czechs to get first ICL 2950 in East

THE first ICL 2950 in Eastern Europe is going to the Institute of Physical Metallurgy in Brno, Czechoslovakia. Worth £1 million, the system will be used for research applications and for the institute's accounting and other administrative applications.

The system will run under the emerging VME/K operating system.

Now there's a better VDU for Honeywell systems

And you can have it sooner

It's Data Logic's PTS 100 and it's available on three months delivery.

Your operators will prefer its 15" green phosphor display. And they'll be more effective, thanks to the better layout of our keyboard and the user-programmable function keys.

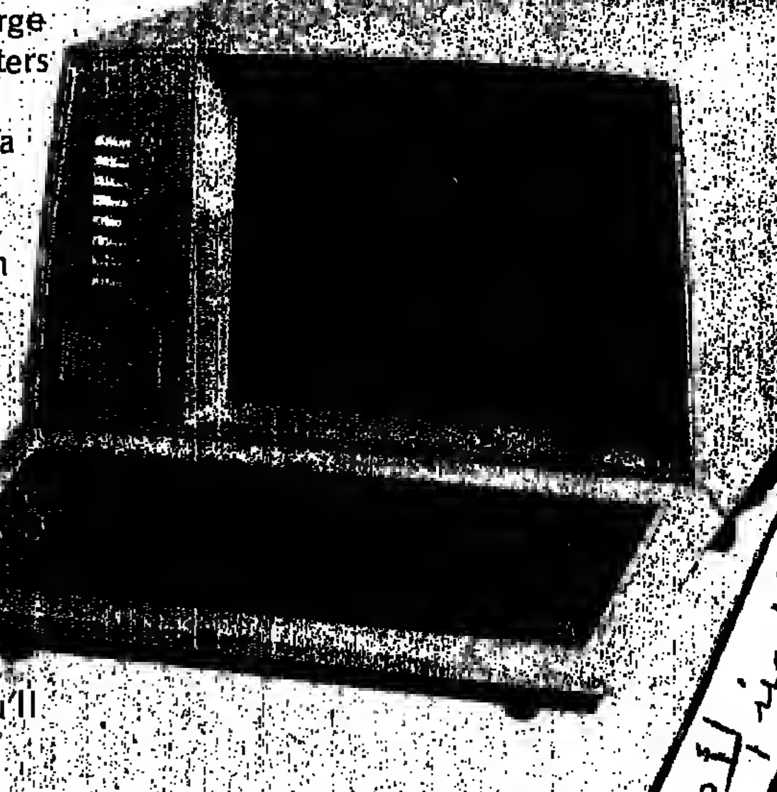
The PTS 100 supports large clusters and a variety of printers up to 600 lpm, which can be mixed on a single system. As a bonus, ICL, IBM and Univac protocols are also supported.

The PTS 100 comes from Raytheon, the world's largest manufacturer of plug compatible terminals.

Data Logic provides fast field service nationwide from 19 UK locations.

So you can rely on the better VDU and us, totally.

Call or write for a demonstration. We know you'll be convinced.



Terminal Systems Division
Data Logic Limited
29 Marylebone Road
London NW1
01 486 7288

Data Logic

A Raytheon Company

Downtime

by Chad

Those tongue twisting acronyms

ACRONYMS abound in the world of computers and many of them roll off the tongue with the greatest of ease. But not all. Members of the Hewlett-Packard General Systems Users' Group, for example, are lumbered with the strangulating HPGSUG, which one assumes is pronounced "Hupugsug" or something like that.

Members of HPGSUG from all over the world will be getting together in Montreux, Switzerland, from September 16-19 for their annual meeting and according to advance information put out about the shindig it is being organised in co-operation with Nestlé Products Technical Assistance Co Ltd which, thankfully, is abbreviated not to the tonsil twisting NPTACL, but to NESTEC.

Plaint song

PROSPECTIVE users of VME/K on the ICL 2900 series have done an awful lot of waiting around for the product to be ready. The breathless anticipation about what each successive version will reveal has prompted Ted Abram of Vestric to devise a motto for the VME/K users' group: "K Sera Sera."

This prompts me to ask whether the motto of the VME/B users' group is "Whatever will B will B."

I HEAR from CII Honeywell-Bull in France that one of the activities they are involved in is "conception assisté par ordinateur". Personally I prefer the traditional means of conception. Still, it gives a whole new meaning to the initials AI, doesn't it?

Troubled Times

THE TIMES is advertising for an "industrial relations executive" to handle the union negotiations for the introduction of computerised systems at Gray's Inn Road. And the best of British luck to him, I say!

Apparently it didn't occur to Times management to have such a person two years ago when all their troubles started.

Still I can't help having visions of the poor fellow who takes the job ending up, trudging away from the battle, In one of those advertisements: "Have you ever wished you were better informed?"

JENKINS with his model which he claims disproves the Theory of Evolution. The right triangles in the model represent the six days of creation and the seventh day of rest.

So the Rock of Ages triumphs over the age of rocks

USUALLY scientific developments are taken as disproving received ideas of religion. So it is interesting to see a lecturer in computer science using his college's DEC 20 to produce an analysis of the Bible that indicates it was written by God and that the Theory of Evolution is invalid.

That is just what Vernon Jenkins, of the Polytechnic of Wales, Pontypridd, claims to have done and he has constructed the model that I show in my picture to demonstrate his theory.

A scheme was devised around 200BC, long after the Bible was written, to represent numbers by the letters of the Hebrew alphabet. Jenkins has taken the Hebrew text of the first chapter of Genesis, converted the characters into their corresponding numbers, and come up with all sorts of interesting patterns. According to Jenkins the numbers 37 and 73 (both prime) keep cropping up all over the place, far more often than probability theory allows.

There is also a whole pattern of sevens in the first verse of Genesis, interestingly enough, since the seven-day bit is the whole basis of the story. The whole thing is tied together by the number of 142,857, known from antiquity, says Jenkins, as "the sacred number."

Since the use of letters as numbers had not been invented when the Bible was written, Jenkins claims that God must have anticipated it and used it as a "divine watermark" as proof of authorship.

The right triangles in Jenkins' model have sides representing the six days of creation and the one day God rested, and Pythagoras comes up with √37 and √73 for the hypotenuses. The same numbers also crop up in the New Testament, specifically in John I.

Quite apart from whether one believes in God, one does not have to believe in probability theory. The pronouncements of mathematicians often seem to me as impenetrable as those of theologians. Still, it is the Theory of Evolution that is Jenkins' prime target, and he points to gaps in the fossil record to support his case.

I find it disquieting to see one branch of science to shoot down another; I prefer the approach that the American populist politician William Jennings Bryan is supposed to have taken at the famous Scopes "Monkey" Trial.

A Kentucky teacher was being prosecuted for teaching Evolution, and defending counsel Clarence Darrow was trying to demolish Bryan's views with geological evidence of the dating of rocks. Thundered Bryan, "I'm not interested in the age of rocks, I'm interested in the Rock of Ages!"

Best place to end it all

EARL JOSEPH, Sperry Univac's tame futurologist, was talking at the firm's symposium in Nice (see page 11), speculating in a rambling way about, naturally, the future. He cited the case of the German poet who was asked where he would rather live if the world were coming to an end.

"Oh, the UK," he replied.

Why? "Because they're 100 years behind the times."

Leslie Chapman, scourge of bureaucracies, stayed firmly rooted in the present. He related how he had taken part in a Granada TV programme attacking the Official Secrets Act. (Granada has just lost its case over the British Steel "mole".) Before the broadcast he was required to sign a document promising under no circumstances to reveal anything about Granada!

GILB'S MYTHODOLOGY

Advances in software engineering practice

HOW advanced are the most advanced software engineering practitioners in the world today?

A survey* was taken of 60 projects in 47 major US aerospace companies during 1977-78 with 225 questions.

The survey data has been made publicly available, even in machine readable form for researchers who wish to draw their own conclusions about the results of technological and organisational ideas on software projects and papers are forthcoming based on this data.

I have sampled the report in areas that interest me and hope that it will give you a better picture of the kind of detail found. Where possible, I will look at issues which I have handled in this column.

NO STANDARDS

Maintainability: Seventeen participants said that the software met the maintainability standards originally specified. Forty-two participants had specified no standards for maintainability. No wonder we have problems. Only one customer himself specified a maintainability goal.

Reliability: Thirty-five projects had no method of measuring or reporting reliability. Six projects used artificial error seeding ("bebugging") as a tool to estimate remaining bugs. Five other projects related curves of errors found to time spent on debugging. Two projects used a model for predicting software reliability error. Six projects were satisfied when a predetermined mean-time between failure of software was reached.

MASTER'S DEGREE

Reviews: Most projects held many types of design reviews, which seems to be a military requirement. Many questions relate to how the reviews were practised.

Unfortunately IBM/Fagan type inspections were not included here and at that time probably few were aware of the power of formal inspections modelled on traditional technology for quality assurance.

Time estimates: Seventeen projects gave the tasks and the deadlines or time. Twenty-four projects allowed for verification or modification of such task-timing estimates. Fourteen projects allowed individual members to estimate time for each task assigned.

Teams: In only one project were tasks assigned to the team as an entity, not to an individual. Twenty-five projects used a support librarian function, while twenty-seven did not. Three of the librarians were at the senior programmer level. Twenty of the 60 projects reported did not have chief programmers.

In only seven cases was the project manager ever a chief programmer, as defined by Baker in 1972. In four cases the project manager had a PhD and in 29 cases had a Master's degree or was slightly more educated. Most project managers could program in some language, 43 of them in Fortran and 18 in Cobol.

Human engineering was specified by 18 of the project customers and portability was specified by eight customers, which is not surprising when another response shows that 25 projects were working with special purpose hardware, and 14 projects had a special purpose operating system.

Twenty-four projects reported that they produced a "program maintenance manual" containing general and specific information for programmers responsible for maintenance.

Forty-four projects reported delivering a test and implementation plan, although I wonder how many of these plans either tried or achieved complete testing in any sense of the word.

Leon Stuckis' work at McDonnell Douglas showed that about half of all instructions were not tested by any test case; and Larson's work at IBM Kingston showed that formal inspections of the test plans uncovered 30% additional test cases which were needed.

MOUNTAIN OF DATA

These are personally selected samples of the mountain of data available from this survey. It will be exciting to see what conclusions can be drawn by correlating [illegible] and drawing conclusions about the most successful approaches to software engineering and software project management.

There is at least one other such database of similar data at IBM Federal Systems Division, as reported by Felix and Walston in IBM SJ 1/77.

We are beginning to get data which will move us away from mythodologies and allow us to make decisions about technology and organisation of technologists based on reasonable probabilities that the cause will give the desired effects, without danger of large unexpected side-effects.

* Results of a survey on management techniques and procedures used in software development projects by the US aerospace industry, Volume II, by Richard Thayer and [illegible] RADC/ISIS, Griffiss AFB, New York, USA 13441.

Tom Gilb is an independent consultant, lecturer and author on computing topics.

TEN YEARS AGO

● From Computer Weekly of August 13, 1970.

A BIG contract from the Greater London Council for the automation of traffic control in central London was awarded to West German firm, Siemens, despite two UK tenders from Plessey and GEC-Elliott Traffic Automation. A Stock Exchange plan to provide its members with a computer-based service to handle inter-firm book keeping work was abandoned with cancellation costs of about £1 million. According to figures from the National Economic Development Office, computers and related equipment accounted for over 25% of [illegible] electronics industry output which rose by 32%. A method of designing and evaluating hospitals by computer was to be developed by Applied Research of Cambridge which was formed last year by members of Cambridge University's School of Architecture. As part of its continuing expansion of online systems, Lloyds Bank ordered a further £5 million worth of IBM hardware, due for installation in mid-1972. Time sharing on the [illegible] PDP-10 now installed at Hatfield College of Technology was demonstrated on Digital Equipment's stand at [illegible].

FOCUS

Leader in the stress stakes......

PEAK-HOUR travelling conditions are a well-known cause of office stress and strain. Hardly surprisingly, a survey conducted by the Institute of Administrative Management suggests that adopting flexible hours helps to eliminate the problems of stressful travelling.

Such recommendations are not of much help to the harassed DPM. His working hours are already highly flexible and it is indeed doubtful whether many DPMs encounter rush-hour traffic or roads — except when on holiday.

Just about the only factor in the DPM's working life which is not flexible is that of stress. It is a strain finding time to meet every responsibility or requirement of the installation. Probably no other individual is so subject to stress as the DPM.

Wine and dine

Stress Item One is probably the senior company management team, which appears to believe that the DPM's life is spent being wined and dined and bribed by sundry mainframe manufacturers, peripheral suppliers and plug-compatible equipment merchants. In between times, the DPM has to audition yet more data input girls, compose adverts for highly expensive programmers, book costly courses for the analysts, attend conferences in exotic lands and escalate all budgetary plans.

Persuading the management teams otherwise is stressful, especially as all too often the DPM does not have adequate time to present fully documented and structured reports. Any more time spent on the compilation would delay even more the proposed upgrade, or increased number of data input terminals.

Most DPMs, of course, [illegible] learnt to live with stress [illegible] the first day they entered [illegible] puting. Getting a job, [illegible] without experience [illegible] ably no easy matter, [illegible] tinued when, as an [illegible] had to contend [illegible] tape drives, impos[illegible] schedules and load[illegible] rest room.

To the analyst, [illegible] produced by the [illegible] user, in particul[illegible] habit of remember[illegible] after the new sys[illegible] further critical [illegible] which will invol[illegible] amendments. A[illegible] grammer, there [illegible] stress when unre[illegible] vious applications [illegible] personnel long d[illegible]

It would appear [illegible] puter industry [illegible] leader in the [illegible] only needs the DPM [illegible] from his install[illegible] weeks to discover [illegible] that:

● The CPU has been [illegible] by a more powerful [illegible] costly range;

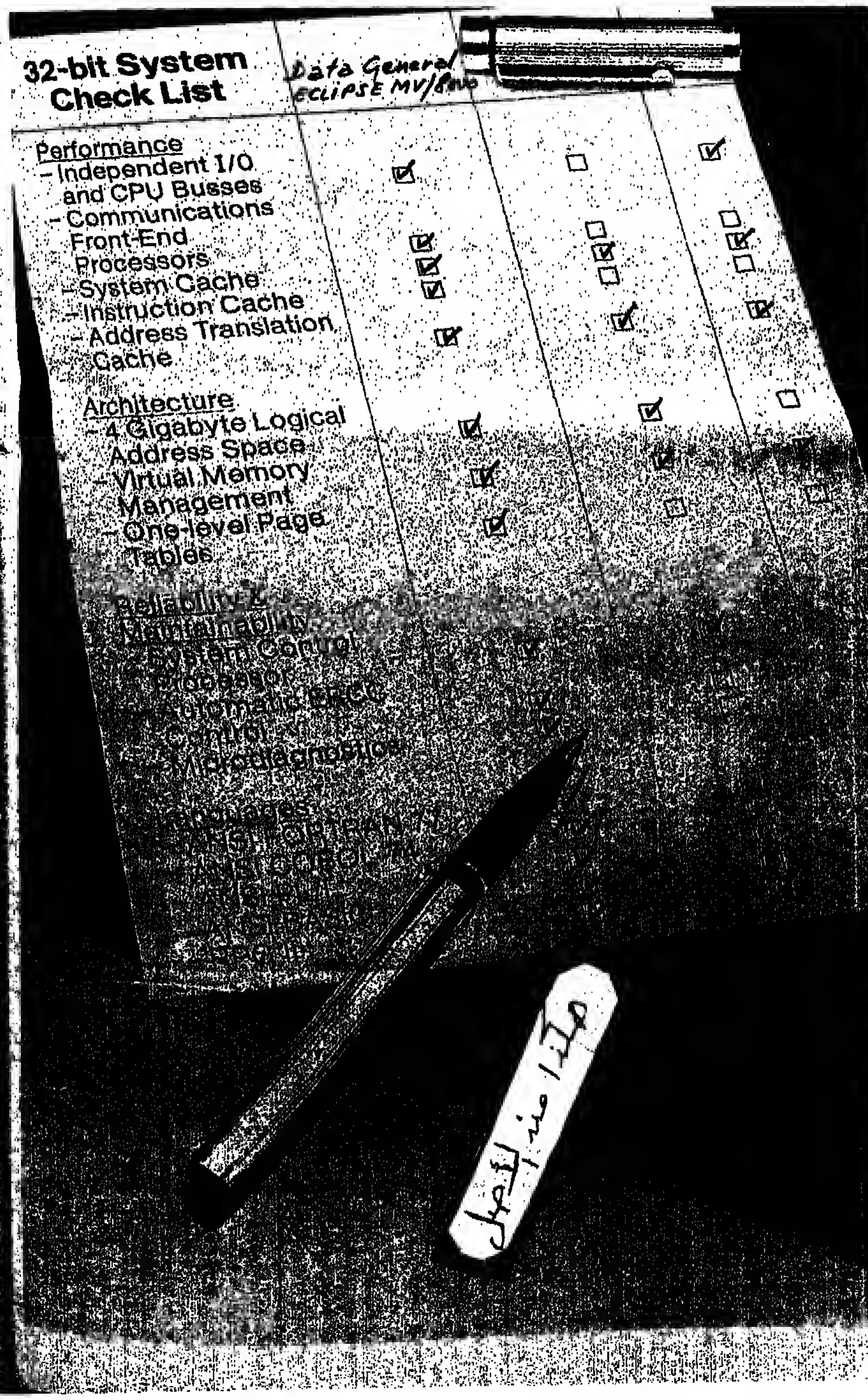
● The air-condition[illegible] ing has cracked [illegible] strain;

● The company [illegible] quested" a new [illegible] implemented in [illegible] time.

Involved

Eliminating the stressful [illegible] not easy in the computer [illegible] dustry. All are involved [illegible] salesmen (will they get that order?) or manufacturers [illegible] the new IBM interface be [illegible] able before IBM ch[illegible] rules?) or the service [illegible] (will the current high [illegible] increase or slacken?)

NEW 32-BIT ECLIPSE MV/8000. RATHER THAN NAMING NAMES, WE'LL LET YOU MAKE THE COMPARISON.



If you need a fast 32-bit system, the NEW ECLIPSE MV/8000 offers you a 36·4 MB/sec. memory bandwidth. And it features independent processors that drive high-speed busses, and as many as 128 terminals.

Need hot architecture? The MV/8000 gives you one of the industry's most advanced virtual memory management systems plus 4 gigabytes of logical address space, and user programs as large as 512 megabytes.

Your MV/8000 also has unmatched reliability and maintainability. It comes with its own independent microNOVA-based System Control Processor that continuously monitors the system, and identifies hardware faults.

System security? The MV/8000 gives you an 8-ring security system that protects system resources and user's privileged routines.

The MV/8000 speaks just about all your languages, based on its new AOS/VS operating system. AOS/VS has optimized microcode for high level languages like ANSI FORTRAN 77, BASIC, PL/I, as well as COBOL, DG/L, DG/DBMS, TPMS, INFOS II, AZ-TEXT word processing, RCX70 (3270) and RJE 80 (2780/3780).

Compatibility? Forget about emulation, mode bits, or rewrites. Along with its new 32-bit applications, the MV/8000 executes all existing AOS programs for total 16-bit compatibility. You don't have to change programs, peripherals, or people.

Don't you think you should make the comparison and choose the winner? The ECLIPSE MV/8000.

Data General

Over 83,000 computers are now at work in 57 countries.

To: Marketing Communications, Data General Ltd, 3rd & 4th floors, Hounslow House, 724-734 London Road, Hounslow, Middlesex TW3 1PD. Tel: 01-572 7455.

Your ECLIPSE MV/8000 sounds like a winner.

☐ Send complete information.

☐ Send information and have a representative phone me.

Name: Position: Company: Address: Tel:

CW 11/8

PAGE SIX, our weekly spot for programmers and analysts, this week hands over to a guest writer, MICHAEL JAMES, from Stoke-on-Trent. In an article based on his own experiences as he has tried to find a suitable job in computing, rather than wait for a TOPS course, he takes a lampooning look at the industry . . . but says that his style could perhaps owe more to Jonathan Swift than to Lewis Carroll.

Alistair's Adventures in Computer Land......

IF Lewis Carroll were alive today, Alice would not be wandering around Wonderland. It would be Alistair's Adventures in Computer Land, for the data system industry has produced more than its fair share of absurdities and paradoxes. Alas, not having the literary talent of Mr Carroll, or rather a minimum of 12 months' successful on-quota experience of novel writing, I can merely outline some of the more ridiculous examples.

So starting at the beginning . . .

In the first series of The Hitch Hiker's Guide to the Galaxy, the astronomers of an alien planet with a lifestyle remarkably similar to that of Earth suddenly discovered that their planet would soon be destroyed. Two huge spaceships were thus built, the first to take the planet's service industry personnel such as telephone hygienicists, advertising account executives, marketing men etc, while the second would take the academics and workers such as professors, captains of industry and engineers.

The first ship was launched in a blaze of glory on a one-way journey to find a suitable planet which the service personnel would then prepare for the arrival of the second ship . . . except that the second ship was not launched, there was no planetary destruction and it was just a superb masterstroke by the thinkers and doers to get rid of all their useless parasite professions.

LIKE A WOLF ON THE FOLD

Others might have their own ratings, but in a hierarchical sequence of usefulness and contribution to society, Alistair would have all computer agency personnel first on board that spaceship, even ahead of estate agents and solicitors — they'd need to be so that they could find the right jobs for the other people!

The teaching profession is very well organised with job vacancies being advertised in certain newspapers and journals. Candidates apply directly and the schools and colleges interview and make their choice. A simple system that works well without any agencies. Alistair has visions of the computer agencies descending like a wolf on the fold and their adverts requiring "minimum two years' experience of Shakespeare or Chaucer under comprehensive operating system".

In Britain, 53% of jobs are filled by direct advertisement, around 25% by direct application and approximately 22% by job agencies. Not so the computing industry, despite the general high level of personnel. Alistair hopes that one day a computer company will develop a system that is intelligent enough to calculate how many people could be trained each year using the money that is currently squandered on computer agencies . . .

Of course the big problem for employers is interviewing potential recruits. In computer sales a successful salesman will find himself suddenly promoted to Northern regional sales manager and booked on a management course in three months' time. Indeed it could be a waste of time for Alistair to attend a seminar on job hunting as these always assume the interviewer knows how to interview. How can the candidates use any interview technique when the manager cannot interview?

Alistair believes that the sales side has an overpreoccupation with "management" and status. Job adverts not only offer Brobdignagian earnings but also virtually immediate management prospects. Compare this with the doctors in the Health Service: a house officer either goes into general practice or rises to become a registrar, then a consultant, with a few going into administration. There is nothing magic about management — there is no way that Alistair can rate a regional medical officer of health as being a "better" doctor than one who performs a kidney or heart transplant.

HULKS AND MUPPETS

Though if the computer industry ran the hospitals, Alistair could imagine a junior house officer successfully removing two appendices and then being immediately "promoted" into administration . . .

Alistair would go for several interviews with suitable companies in the regulation uniform of loud suit, revolting shirt and nauseous tie that sends children clutching at their mothers' skirts, but meets with the general approval of sales managers. After these interviews, Alistair would find that the commercial mini salesman would fall into two categories, the poseurs and the Incredible Hulks. The poseur company will have city centre prestige offices with the reception area full of gigantic rubber plants and exuberant greenery more in keeping with a Tarzan film set. A super secretary will ask Alistair if he would like a coffee and "how he takes his coffee" because instead of speaking English, everyone speaks in a mid-Atlantic accent using a Muppet-like speechform.

While Alistair drinks his coffee, he can watch the salesman hard at work moving smoothly from one posed position to another — just like the local trendy disco! Naturally, Alistair would have a super interview with the super sales manager and everything would be really tremendous.

Contrast this with the offices of the Incredible Hulks. These will be situated just off the city centre with one smart room for holding customer demonstrations, while the offices are in a semi-squalor to keep down overheads. While a thick skinned tenacity is important, the essential requirement for success is to conform to the incredible Hulk stereotype — 1950's unliberated MCP male, on-quota weekly consumption of n pints of bitter, m bottles of whisky and at least three women, plus games of poker for very high stakes. Alistair might lose all of his hard earned commission but at least he'll be one of the boys . . .

Alistair, though, doesn't really want to be in commercial sales as he likes an intellectual challenge. He'd love the computer time to calculate how long it would take six monkeys to create Hamlet using six typewriters and compare this with the creativity time of six word processor salesmen and their machines. Would the monkeys win?

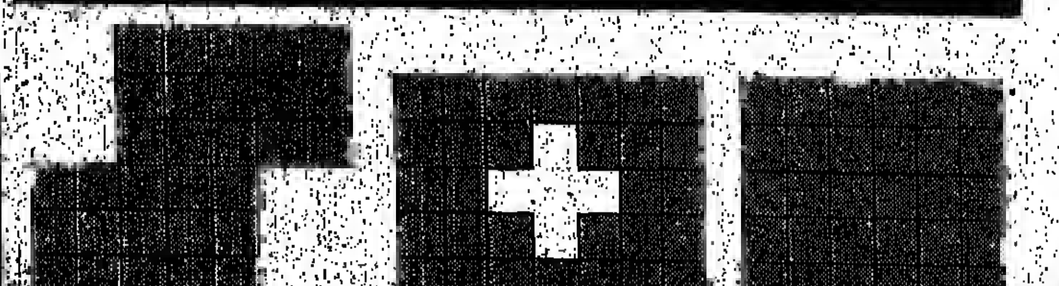
ETERNAL DAMNATION

Alistair would also like to go for interviews as a programmer or analyst but doesn't have the necessary one-year experience. Several people have suggested that there are certain numbers that remain constant through time and space, which will provide the answers to the hidden secrets of the universe. Alistair believes that the key number is one, the galaxy being an integer entity that has no room for 0.5 or 0.75. Woe betide any manager rash enough to employ a person without this one year's experience as this will determine an eternity of damnation hung up in some minor subroutine loop of that great computer in the sky . . .

Naturally Alistair would like to have a happy ending to the story, with the PER coming to the rescue at the last minute with a TOPS course in systems analysis and everyone living happily ever after. Alas, although Alistair has passed his aptitude test and interview, there is a huge backlog of people waiting to attend.

But for you readers who have read this far, do not despair. In his travels across Computer Land, Alistair has found one or two real companies in this unreal land and success, like the computer you needed yesterday, has had its delivery time postponed.

PUZZLER



THIS little "double-shift" dissection will test your powers of visual projection. The first problem is to cut the solid left-hand figure, along the grid lines, to form only two pieces that will interlock to form the middle figure, which has a five-square aperture in the centre. Then, as a completely separate problem, you are asked to dissect the middle figure (once again only along the grid lines) to form two pieces that will interlock to make the solid block on the right.

See page 39 for the solution.

SOFTWARE FILE

For £100 Zilog MCZ-1 users can use CP/M

FOR about £100, users of Zilog's MCZ-1 microcomputer systems can run CP/M, the widely used operating system developed by Digital Research.

The MCZ-1s will need hard-sectored diskettes, which involves a hardware modification but will still allow MCZ-1s to run Zilog's own more powerful Rio operating system.

Although Zilog already has a large resource of commercial systems for the MCZ-1, CP/M's popularity will make accessible to users much applications software which has been developed to run with the operating system.

CP/M's popularity is mostly based on ease of use, and Zilog has adopted it on the basis of "If you can't beat 'em join 'em" rather than because of any deficiency in Rio. For existing systems a retrofit of the hardware adaptation will be available for £50.

ADR plans to integrate its products

US software firm ADR has announced an integration of its software products into "functional application areas", so that products such as Librarian and Datadictionary are grouped under Resource Control, and Roscoe and Vollie under Online Program Development.

According to ADR's UK managing director Nick Pollard, the idea is to make substantial increases in sales by selling an integrated software system, the advantage to the customer being "a single source for his software solutions".

ADR's products are also sold by CPP in the UK, which shares the range with the UK subsidiary which was fully established this year.

SOFT BITS

Printing boost for ICL users

A PRODUCT developed inhouse by Safe Computing to improve its own printing capability under ICL's George 2 operating system has been made available to all ICL users.

The product, G-TOM, enables the transfer of print files between 1900, VME and DME environments, allowing archiving on magnetic tape, at a cost of £1,000.

ACCORDING to Fujitsu's internal news service, the Japanese electronics industry is increasingly interested in leasing software products as a way to increase hardware sales. Leasing of software has lagged behind computer leasing which accounts for 30% of all total lease transactions in Japan.

FRENCH software products firm Sligos has released the 61st version of its general accounting package Gael 3 for IBM's 43xx series, having already adapted the programs to VSAM access.

US parent of APL Plus, STSC, formerly Scientific Time Sharing Corp, has announced record turnover and net profit for its fiscal year ending in May 1980, of $21,101,000, an increase of 27% over 1979's figures.

A 16-BIT microcomputer implementation of business Basic is offered by Sentinel Computers for its range of small business computer systems based on the Intel 8086.

ANAGRAM SYSTEMS of Horsham, Sussex has a sales ledger and invoice printing package for Commodore Pet users. The system is mostly written in 6502 machine code and consists of 70 modules which require a 32K Pet, dual drive floppy disc and 80 column printer. It costs £320 plus VAT.

Digico adopts development tool

DIGICO is to adopt, as standard, software produced by a two-man team under the name Universal Program Development and Maintenance Suite which has just had its price cut from £1,250 to £200.

Formerly known as Editor Suite, the set of programs allows users to turn Digico's Basic into a comprehensive development tool.

The suite handles standard functions, replacing many time-consuming procedures with a one-line call. The library has 80 functions which include age and date calculation and page handling as well as more unusual features such as a universal graphics generator, a histogram generator and a cheque generation facility.

The price was reduced to keep it in line with falling hardware costs and to bring the suite within the reach of more [illegible]. Co-author Bob Sims says it [illegible] be supplied free to hospitals.

Ansi backs blanks

THE Ansi Fortran C[illegible] X3J3 has voted to [illegible] significant in Fortran source. The [illegible] said: "The special [illegible] blank is a meaningful [illegible]. Constants, symbolic [illegible] statement labels and [illegible] must be separated [illegible] other by at least one special character."

by Claire Gooding

Macro tool could boost productivity

A MACRO based tool that is said to beat similar ICL products by cutting system development and operational costs as well as minimising machine overheads, has been launched by Forward Computing of Birmingham.

Co-developer Melvyn Morris said the tool, called Macro Expansion Language, could be applied to most languages and in ICL's case this was from Cobol to JCL.

"Comparable products such as ICL's DDS and Dataskil's SuperCobol, formerly Cobra are competing with one another by covering the same area. Neither is as good as the facilities we can supply involving a single preprocessor," Morris added.

Potential

Users of ICL 2903/4, 2990 DME2/3 and ME29 equipment could avoid investing in such extras as George 2, Maximop, and Exec by applying the MEL principle, said Morris, and there was potential for improving performance on existing systems such as Telecomputing's TPS.

On the operations side, MEL is said to reduce George/JCL tasks into one-line commands to run a program, using only the program name, which generate all necessary JCL code. In online JCL development MEL can increase the levels of macro nesting allowed under George 2 from one to 64 and, in job submission, the parameters of a job can automatically be checked before execution.

Reduction

Applied in Cobol program development, the use of the macro principle can mean a vast reduction in time spent coding the Data Division, and free the programmer from routine tasks such as checking the condition of a file in the Procedure Division. The Identification Division can also be generated as far as "Special Names" by one statement of the program name.

The MEL application is also said to allow analysts to design files via a VDU. Hard copy documentation is then automatically produced, "fleshing out" the design.

All the commands concerning files — Select/Assign, I/O control, FD file descriptions — can then be bypassed by the programmer using a single line declaring the file name.

In-house standards such as a unique file prefix to each variable name can be taken care of in the generated code.

Other programming shortcuts provided by MEL techniques include generators for tests usually done on 88 Level switches, allowing one-line tests such as "IF FILE FULL" . . . ", case PERFORMs and GOTOs, and the facility to insert generated code into a program by means of an in-line DO instruction.

Morris developed the Macro Expansion Language with Dermot O'Laughlin, having decided after eight years of programming that certain repetitive Cobol tasks were "a pain" and deserved elimination.

Removing

"All the restrictions we're removing are the parts of Cobol which actually obstruct the programmer in his real task of problem solving."

When asked about the use of Copybooks for such macro tasks, Morris explained that MEL had a "measure of intelligence", not the heuristic kind, by which macros could communicate and follow judgment paths. Also code could appear where it is most relevant, for instance the Working Storage section which relates to a procedure module can appear above the module on a listing.

Future plans

Forward Computing's Birmingham bureau has been running MEL facilities for six months, and is now offering them at prices varying from £5,000 to £15,000. ICL users already interested include the Severn Trent Water Authority and Lever Bros of Nigeria.

Forward Computing's new products division, a Richard Costain subsidiary, is planning further products based on MEL in the future.

Low cost way to select applications

USERS of IBM 3270 terminals are being offered a software package by Memorex which will enable them to select applications in any CPU without investing in further hardware and software from IBM.

The Terminal Initiated Application Switching package, TIAS II, is designed for the Memorex 1380 intelligent front end communications system and supports a range of multi-point 3270 systems.

It enables the terminal user to select or switch between applications such as TSO, IMS or CMS without operator intervention on transmission lines.

APL courses

DUE to demand, APL specialists Cocking and Drury is to run extra courses on APL during the autumn. The fundamentals course costs £850 to £2,300.

IBM compatible RPG II for micros

AN IBM-compatible microcomputer based compiler for the programming language RPG II, claimed to be the first of its kind, has been launched by Comart of Cambridgeshire for the Cromemco range of microcomputer systems.

Said to be a full and fast implementation of the language based on the IBM System 3 version, it is designed to run on any Cromemco with a minimum of 64K-bytes of memory. The price of £350 plus VAT includes the CDOS operating system, editors and documentation.

Concise

RPG II, Report Program Generator, is a business oriented language which is said to be concise, easy to learn and highly productive within its sphere of creating and maintaining files as well as reporting on data.

It also has a range of advanced commands for more complex applications and is claimed by partisans to be as powerful and versatile as Cobol, but more manoeuvrable. IBM chose its heir, RPG III, as the main language for System 38, now joined by Cobol (Software File, August 7).

Unix marketed as Xenix

THE time sharing operating system Unix is to be enhanced and marketed under the name Xenix by micro specialists Microsoft, following an agreement with Unix owners Western Electric.

The agreement forms the basis of a bid by Microsoft to establish Xenix as the standard operating system for 16-bit small computers in the 1980s. Charges will be based on volume and number of users per CPU.

SUMMER SALE
Unrepeatable bargains

£599
DECWRITER IV
30 cps, desktop terminal with variable character and line spacings, adjustable margins and horizontal tabs.

£499
CENTRONICS 730
Lightweight 100 cps. miniprinter with three-in-one paper handling and expanded or compressed print.

RAIR
RAIR Limited 30-32 Neal Street, London WC2H 9PS Telephone 01-836 4663 Telex 298452
Name
Position
Company
Address
Telephone number
Extension

FBA emulation on your CKD devices
VFBA
VFBA gives support for virtual FBA disks on normal CKD devices
Use of VFBA reduces CKD overheads to that of normal FBA devices
VFBA runs under VM, but does not modify VSE, AF or DMS
For 9 part pack minidisk support
VFBA means removable FBA files
WESTINGHOUSE MANAGEMENT SYSTEMS S.A.

DIGITAL • ANDERSON JACOBSON • TRANSDATA • A M JACQUARD • MELLORDATA • NEWBURY LABORATORIES • TEXAS
HEWLETT PACKARD • DATA DYNAMICS
KSR's
30 cps from £45 per month
120 cps from £57 per month
Variable from £63 per month
Daisy Wheel from £104 per month
VDU's
ASR's
Integral terminals from £87 per month
Separate P/T Cassette units from £43 per month
Separate Diskette units from £60 per month
SHORT TERM RENTALS ALSO AVAILABLE
Contact Mike Brooke or Philip Ely. Tel: Byfleet 51151
MBS Rentals
Specialists in the renting of terminals
• TREND • QUME • DIABLO • LEAR SIEGLER • TALLY • PERICOM • TECHTRAN

PEOPLE and EVENTS

Office Technology recruits from ICL, IBM

OFFICE TECHNOLOGY, the new sister company to Computer Technology, has recruited its senior management team entirely from ICL and IBM.

John Holmes joins as programming manager, having worked for IBM Hursley for 13 years. Engineering manager is Peter Shepherd, whose past experience includes five years at IBM Hursley and four years with the Post Office at Dollis Hill.

Office Technology's manager of product marketing strategy is Bob Remington, who joins from the US. Remington is a psychologist who formerly worked in the IBM Office Products Division at Lexington.

Managing director of Office Technology, **Robert (Spud) Taylor** was previously vice-president of ICL American operations, and director of product introduction. He described the recruitment of the management team from IBM and ICL as "unique".

Office Technology expects to announce its initial product, aimed at the word processing market, at the end of 1981.

New management team for Office Technology are (left to right); Peter Shepherd, engineering manager; John Holmes, programming manager; Robert (Spud) Taylor, managing director; John Boal, product development manager; and Bob Remington, manager of product marketing strategy. The company is based at Winchester.

Restructuring at Roxburgh

ROXBURGH Electronics has restructured the company organisation. To cope with growth in both component and data recording activity, two separate companies have been formed.

Roxburgh Printers will be headed by director and general manager Michael Davis.

Roxburgh Switches will be headed by Bilgimel Coverdale as general manager. Roxburgh Electronics will remain a holding company with the major shareholding in both new companies.

Bill Ling has been appointed sales and marketing manager for the computer peripherals group, which operates within the Data Recording Products group of 3M. He will continue to work as national sales manager, handling the OEM and instrumentation markets for 3M, in addition to his new duties.

Gary Mason has been promoted within Centronics from special accounts manager for the UK subsidiary to sales manager, new territories. He will be dealing with the Middle East, European Communist Countries and Africa.

Ian Richards, formerly of IBM where he was service planning representative at Hursley, has joined Magnuson as software manager. **Terry Rees** has become area sales manager with Magnuson; formerly he was business development manager with Univac. **Bob Gridley** has joined Magnuson as senior engineer, and **Roger Blight** as sales engineer. Gridley was previously an account engineer with Itel and Blight was also with Itel, working on the Advanced Systems Project. **Lorna Robertson** comes in Magnuson as personnel administrator.

Stan Smith and **Clive Rowe** have been promoted at TDS, Smith to sales engineer for the south, and Rowe to sales engineer for graphics products in the Midlands.

Damien Muir has joined CMC as branch manager for the North and East Home Counties. Previously he was a sales manager with Olivetti.

Ken Pearson is Midland district sales manager of Sweda International. He has been promoted from Midlands sales supervisor.

William Vall has been named as vice-president of finance and administration of Softech in the US. He was previously controller at the Electro-Optics Centre of Honeywell in Lexington, Massachusetts.

Barry Roberts is manager, international field marketing operations, of Redifon Computers. Previously he was control accounts regional manager. Dr **David Evans** has been appointed as a director for Redifon Computers and Redifon CMC-Europe BV. Dr Evans is chairman and president of Evans and Sutherland Computer Corp of Salt Lake City, Utah and was previously Professor of Computer Science and Electrical Engineering at the University of California, Berkeley.

Walter Brandi is Central European sales manager for American Microsystems, Europe, based in Munich. He was formerly microprocessor and systems sales manager for Germany and Austria with National Semiconductor.

DIARY

AUGUST 22
Financial seminar, FINAR financial modelling system. Bunzl Data Systems. Bunzl Offices, Chiswell Street, London EC1. For details tel: (052 53) 377477.

AUGUST 29
Seminar FASSET fixed asset recording and accounting system. Bunzl Data Systems. Bunzl Offices, Chiswell Street, London EC1. For details tel: (052 53) 377477.

SEPTEMBER 1-2
Microprocessor workshop. Computer Lab, University of Liverpool.

SEPTEMBER 3-5
Logic and microprocessor system design course. Computer Lab, University of Liverpool.

SEPTEMBER 7-12
Introduction to small computer systems in engineering applications, vacation school. Institute of Electrical Engineers, London. Details: IEE, 01-240 1871.

SEPTEMBER 8
Talk on Portability of Fortran 77, Dr John Larmouth: BCS Fortran Group, BSC Headquarters, 13 Mansfield Street, London, W1. 10.30 am.

SEPTEMBER 9-10
CAPP-80, typesetting seminar, Royal Lancaster Hotel, London. Details: CAPP-80 Conference Unit, 01-836 4888.

Leonard van Geest

LEONARD VAN GEEST, director of Geest Computer Services, has died at the age of 85. He formed Geest Industries with his brother John in 1938.

Vic Lane has been appointed computer technical adviser to the Government of the Bahamas, as part of the United Nations development programme. Lane is currently head of the management information centre at North-East London Polytechnic.

Helmut Kahl has been promoted to marketing director for major accounts and distributors in Europe at Dataproducts International.

Lane

Plummer

Tony Plummer has been appointed consultant relations manager at Honeywell. He joined Honeywell in 1968, after working as branch manager for the customer services division of Sigma (Fast Xerox) Systems.

Alan Cowan has been appointed manager of PA's Software support unit. He was previously PA's UK personnel manager.

Liveware File

by Dick

Take some professional advice.

Verbatim flexible discs and tape cartridges are used and recommended by computer professionals world wide. A full development programme in association with leading manufacturers ensures top quality and we provide unrivalled price and availability. For the full range of magnetic media from Willis see our catalogue.
Phone Bishops Stortford (0279) 506491 or send coupon.

WILLIS
Computer Supplies, for people who know better.

To: Willis Computer Supplies Ltd., P.O. Box 10, Southmill Road, Bishops Stortford, Herts CM23 3DN.
Please tell me more:- Flexible discs ☐ Mini discs ☐ Cassettes ☐ Cartridges ☐ Catalogue ☐
Name
Company Address

WHY DO THOSE IN POWER KEEP MAKING THE WRONG DECISIONS? CAN COMPUTERS HELP THEM MAKE THE RIGHT ONES? OR WOULD MORE TECHNOLOGY SIMPLY MAKE MATTERS WORSE? THESE WERE THE QUESTIONS TACKLED BY A DISTINGUISHED TEAM OF THINKERS AT SPERRY UNIVAC'S SYMPOSIUM IN NICE. RORY JOHNSTON REPORTS...

Human beings 'nearing the biological limits of their ability to absorb technical change'

THERE is an increasing feeling that the world is running away with itself. Galloping technical change, planning disasters, environmental disasters, frustration with bureaucracy all combine to produce a feeling that the control which human beings have over their collective future is dwindling away. So it makes sense to examine the ways decisions are made in government and business, and to this end Sperry Univac UK gathered a distinguished group of people from government, the universities, and business for a symposium in Nice. Added to the general theme was the general question, "Can Information Technology help?"

There was little disagreement that decision making was in a sorry state at the moment. Charles Read of the Inter-Bank Research Organisation described present-day planners and system designers as "drunks riding bicycles in a thick fog."

Heinz Wolff, a bio-medical engineer with the Medical Research Council, suggested that human beings were beginning to reach the biological limits of their ability to absorb technical change.

Wasted

Leslie Chapman, a prominent critic of the Civil Service, said that vast sums of public money were being wasted because of officials who are fundamentally opposed to change and blind to problems, elected representatives who are ineffectual, and confusion over responsibility.

Reby Atkinson, himself a senior civil servant in the Department of Industry, admitted that officials had far too little experience of management and of the fields outside government with which they deal.

To the question "Can information technology help?" the general if reluctant answer was "Not really."

Said Atkinson, "I don't think the problems of the Civil Service are going to be solved by information technology," pointing to view of Ian Lloyd MP that for this technology to work the whole structure of government would have to be changed and its objectives thought out again.

Atkinson added that he had been struck by how little civil servants had any concept of information as a commodity or vital raw material.

Atkinson also asked whether better information would necessarily lead to better decisions, a point echoed by Heinz Wolff.

But Wolff was basically enthusiastic about technology, suggesting that it could be organised to present information to decision-makers in a much more digestible way than at present. As an example he described his idea of using polar co-ordinates on a screen for displaying variable data, such as a hospital patient's blood pressure, heart rate, and temperature. Any variations would instantly be visible as a change in shape of the figure on the screen. This could be applied to any other sorts of information such as financial data.

Influenced

In considering decisions the symposium inevitably came round to questioning the objectives laid by decision makers. Politicians, it was suggested, are concerned with policy and not with management and are too easily influenced by who does best in a debate. Officials, on the other hand, judge their actions by whether the rules have been followed rather than by the bottom line.

Cherles Reed was insistant that it should be possible to have non-quantifiable objectives, pointing to the voluminous EEC regulations on apples that in no way deal with whether the apples taste good. Information technology on the other hand leads to over-emphasising the measurable at the expense of the non-measurable.

CHAPMAN: Corrupt civil servants would steal less than they waste now.

READ: Attacking the false god of efficiency.

Martin Shubik of Yale University remarked that the US Defance Department's strategic thinking was based on the hardware that existed rather than the other way round.

Frank Davidson of the Massachusetts Institute of Technology agreed, opining "Invention is now the mother of necessity." He pointed to the claim that PERT techniques, far from saving money on the Polaris programme on which they were first used, actually added $1 billion to the cost. Yet the public assumed that PERT was a success and was frantically trying to apply it to lots of other projects. "The answer," Davidson said, "does not lie in methodology."

Too much power

A public survey had been commissioned for the symposium from National Opinion Polls. Two thousand adults had been asked for their views on where power in Britain lies and how life could be improved if the decision-making structure was changed. Trade unions and oil sheiks came at the top of the list of those thought to have too much power, with MPs very low.

Of those asked, 40% thought that life would be made worse if there were more computers in the UK, and 33% thought it would be made better.

Inevitably the issue of open government arose at the symposium, championed by Leslie Chapman, who asserted that it was to a large extent the absence of hard facts and information which enabled officials to make elected representatives ineffectual. At the same time he described how, as a director of London Transport, he was swamped with vast quantities of paper for approval which he could not possibly read in toto.

Contradicting Chapman, the civil servants present claimed that freedom of information in such countries as Sweden was a sham and that the advantage of secrecy was that it allowed a strenuous debate within government before decisions were taken without those involved having to worry that they were giving the Opposition ammunition. It was also remarked how lucky we were in Britain to have a relatively incorrupt Civil Service.

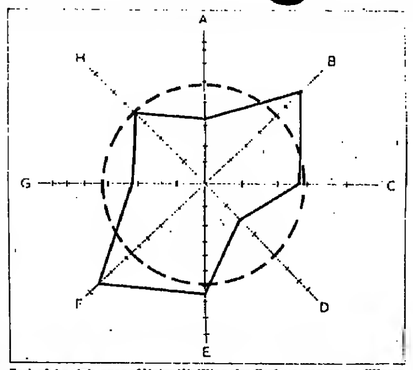
To this Chapman replied, "If they were corrupt they would steal much less than they waste now!"

Failures in recent decision-making provided plenty of food for thought. Frank Davidson was involved with the North East Corridor Project to build a fast rail system between Washington and Boston. This had been cancelled because it was assumed that new technology would soon supersede the railways, a totally unjustified view as could now be seen.

"'Future Shock' has been exaggerated," Davidson said, "in many areas we need more change than we have at present, not less."

Charles Read put a different slant on the proceedings, attacking the "false god of efficiency," and claiming that cost-benefit analyses were "all cost and no benefit." We should automate the Black Economy, using viewdata to promote barter and circumvent the tax man (and incidentally the banks).

DAVIDSON: The answer does not lie in methodology.



Each of the eight axes of Heinz Wolff's polar display represents a different variable. Normal values produce a circle, and any deviation from the norm produces an instantly recognisable distortion in shape.

'Carry all your personal data on a card' idea

PRIVACY as an issue arose several times at the Sperry Univac symposium, prompting Heinz Wolff to suggest that a solution would be to abolish central files altogether. Instead, every citizen would carry a machine-readable card around bearing all his personal data — bank statement, car tax record, educational qualifications, TV licence payments. This Wolff called "The Labelled Society."

Such a scheme was already in use in Chinese hospitals, Wolff stated, where individuals were responsible for keeping their own medical records. The effect was that there was no way other people could pry into personal data.

People would be motivated to have their cards updated as various services would not be obtainable without the card. For instance, the card would be your car key and the car would not start if the road tax was unpaid.

There would have to be a central repository of duplicate cards to replace those lost. This led others to suggest that Wolff's idea was basically sound, since it would always be possible for unscrupulous people to obtain personal data from this central bank.

Wolff and Richard Gregory, a physiologist from Bristol University, proposed a novel application for computers in assisting invention. Many developments were held up for years by a "missing link" in technology. For instance, jet engines needed a heat-resistant metal for their turbine blades, and magnetic sound recording needed a medium. A computer databank for problems looking for solutions could be fed with new developments as they came along.

BASF EDP's FAST MOVER

Datasolve

October training
Book your place now...

Telephone Techniques 2-3 and 23-24 Oct.
Effective Writing 6-8 and 29-31 October.
Datapoint Operations 16th October.
Programming Logic & Techniques 13-17 and 20-24 October.
ANS Cobol 20 October - 7 November & 27 October - 14 November.
OS/VS JCL 6-10 October.
OS/VS Utilities 13-15 October.
VSAM/AMS 20-23 October.
OS/VS Assembler Practical Workshop 6-17 October.
VME/B Basic Ops. 27-31 October.
VME/B Advanced Ops. 20-24 October.
VME/B SCL 13-17 October.
Teleprocessing Concepts 20-21 October.

BOC Datasolve

BOC Datasolve Education, 9 Rochester Row, London SW1 1LA. Telephone 01-828 8104.

جاءنا من الأصل

Let our training take the strain

I would like further information on
Name
Title
Address
Tel

COMPANY NEWS

Brokers put their money on Honeywell

AN enthusiastic brokers' report on Honeywell sees the company gearing up for a very strong year in 1981 as the domestic US economy begins to pick up, shipments of the large-scale DPS-8 computers start to build, and contributions from CII-Honeywell Bull improve.

The report, from Jerry Lieberman of Rothschild, Unterberg, Towbin, suggests that Honeywell shares are selling at only seven times their 1981 earnings estimate, and that the company's growth potential thereafter is underrated.

Lieberman notes that Honeywell has a shortage of capacity for the DPS-8, the successor to Level 66 at the top end, but that the company is putting in extra capacity to meet the demand. Nevertheless, shipments are about 10% below plan, which means that the benefits will really become apparent in the 1981 figures.

He also notes that Honeywell's ambitious and successful gamble to turn the Level 6 minicomputer into a major product is beginning to pay off, and that it should soon become a significant profit earner. Level 6 looks like a major base-builder for Honeywell, with, according to Lieberman, 40% to 50% of sales going to new customers.

Honeywell always tends to look bad overall in a recession, because US housebuilding is almost always the bellwether of any downturn, and that in turn hits Honeywell Controls hard. However European business on this front is this time ameliorating the affect.

Healthy year for MDS

MANUFACTURER of data entry and distributed processing systems, MDS, which has had more than its share of financial trouble in the past has reported very healthy results for its 1980 fiscal year ended April 30.

Turnover rose 19% to more than $212 million while profits before extraordinary items came to almost $14 million, a 47% increase over the previous year. The fourth quarter figures included revenues of $56 million compared with $49 million for the comparable quarter of the 1079 fiscal year.

Order backlog at April 30 was nearly $185 million compared with less than $179 million a year before, but it was down compared with the end of the third quarter when the backlog stood at more than $195 million. According to MDS chairman, Ralph O'Brien, the backlog decline from the third quarter was totally attributable to the translation of foreign currencies into a stronger dollar at April 30 compared with January 31 exchange rates.

ICL aims at US market penetration

by Hesh Wiener

ICL Inc, the American subsidiary of the British company, ICL, recently announced its new general purpose computer system, the ME29, and a new hardware-based information retrieval subsystem for its 2900 line, the content addressable file store, CAFS. Along with the announcements, ICL says it is making a major commitment to its US operations.

The company now has a small customer base in the US, which ICL officials hope to expand several times during the next five years. To do so, they will try to keep the company's product announcements timely, and they will greatly increase ICL's personnel and offices.

The company recently moved its corporate headquarters to Dallas, Texas, has administrative offices in East Brunswick, New Jersey and houses its Advanced Systems Division, which markets the new products, in Washington, DC.

CAFS, the company's new subsystem, runs on an ICL processor and disc drive. A typical CAFS configuration will sell for about $750,000, and includes both a processor, ICL's 2950, 2956 or 2960 computer, and a disc drive.

Unlike some of ICL's US offerings in the past, which were introduced in Europe years earlier, the ME29 was announced in the UK, Europe and Canada in March, April and May, respectively.

During the next five years, officials say, ICL can sell 258 ME29 computer systems and 45 CAFS during that time. Its plan, drawn up and approved by ICL's board of directors last November, also calls for the company's Advanced Systems Division to double its staff during each of the next five years. Today, ASD has 50 people; by 1985, that number will be close to 800.

To back that up, said Bob Bracewell, executive vice president for ASD, the parent company is prepared to spend "many millions of dollars."

Sources in the company say that ICL Inc now has six letters of intent to buy ME29 systems and about 40 "solid prospects" for CAFS.

Entry ticket

Although ICL will use both the ME29 and CAFS to penetrate the US market, neither product will be ICL's main entry ticket. ICL is establishing maintenance bases around the country for the several hundred Singer computer systems installed in the US. These bases will be used by ICL to launch a sales campaign.

Last year, ICL began to offer service on installed Singer computers in the US. TRW had taken on the responsibility several years ago when Singer quit the computer business. At that time, ICL bought Singer's international operations. Now, TRW will still service the machines in the US — but so will ICL. "We're offering a service alternative," said Bracewell, adding, "There's been a lot of unhappiness with TRW's maintenance of these Singer machines. And by association, with us as well."

ICL plans to send its sales people to each of the bases. There are now 12 such locations; the company says it will add another eight, bringing the total to 20, by the end of 1981.

The company has also transferred Thomas J. Woodhill, who turned ICL's Canadian operation into a money-maker in about three years, to preside over ICL Inc.

Who will buy ICL's products, other than its present users, and why, is unknown. ICL says its computers offer a 10% price/performance advantage over comparable IBM equipment, and that this will attract customers. But industry observers point out that the standard price/performance advantage for IBM plug-compatible machines is closer to 20% or 30%.

The ME29, model 35, in a typical low-end configuration, sells for about $98,000. Monthly rates for a one-year lease are about $2,648; monthly rates for a five-year lease are about $2,177. A typical medium configuration for the model 35 sells for about $185,000. Monthly rates for a one-year lease are about $3,648; for a five-year lease, the monthly charge is about $3,000. A typical model 45 configuration sells for $250,000. A one-year lease would produce a monthly rate of $6,756; for a five-year lease, the monthly rent is about $5,585.

IBM's System 38 Model 5, a machine similar in performance to the ME29 model 35, sells for about $91,780. This price is for a rock-bottom configuration. A three-year lease, the only kind available, has a monthly rate of about $2,790. A more expensive configuration with additional storage sells for $137,910. The monthly rate on a three-year lease would be $3,265.

But H. Donald Haback of industry consultant Gartner Group was sceptical of ICL's chances of success in the US. Haback was unsure whether ICL would actually spend the large sum of money he said it would need to sell its wares. "The question is," he said, "how much must they spend to get going, and is the company willing to spend it?"

Haback recently told his clients that ICL's "history of abortive starts in the US also works to their disadvantage, as does an unhired, untrained and (naturally) untested marketing sales force.

"Even if they do sell 258 of the ME29 computers," he added, "so what? That's $25 to $30 million. What are they going to do next?"

Bracewell said the company had a number of new products soon to be announced in the US. One such product is the Distributed Array Processor, a large and fast scientific computer which the company says is more powerful than the Cray 2. "For these machines," Haback said, "the customers come to you. You don't have to beat the bushes to make a sale."

Leave no hatch unbattened

LAST week's calamitous bank lending figures mean that the present level of Minimum Lending Rate, which determines other interest rates in the economy, is with us almost certainly for another two months, perhaps three. That in turn means that unless some kind of preferential treatment is introduced for companies near the end of their tether, easing of the problems to which we alluded in this space last week has been postponed.

The conclusion that it was wrong to remove the so-called "corset" on bank lending, and that

COMMENT

everything would be all right if it remained, is erroneous. What the latest set of banking figures really do is to underline how impossible it is to manage an economy with crude and arbitrary controls in a free society. Instead of effectively curbing monetary growth, all the corset did was to cause the banking system to be bypassed. With the corset gone, the business has flowed back to the banks, and what the figures really do is to bring into the open what has been happening unseen.

However, no-one yet knows when the big surge only now showing up in the figures actually happened. Until we get another couple of months' figures we will not know whether the surge is immediate — and therefore a serious problem — or happened some time in the past, in which case the government may not be too far off course.

Whatever the situation, some kind of preferential treatment for companies in trouble, both for finance and energy prices, looks essential. In the meantime, managers have the miserable prospect of having to make another round to ensure that no unnoticed hatches remain unbattened.

Nonstop Tandem profits

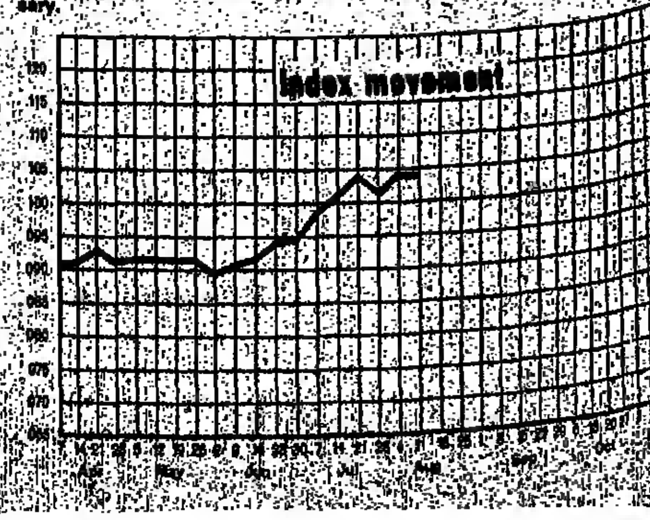
NO stopping Nonstop minisystem specialist Tandem: for its third quarter to June 30, the company has reported net profit up a storming 114% at $2.77 million; the company has only given a three quarters' turnover figure: up 98% at $74.9 million. Tandem has just shipped its 1,000th processor (all Tandem systems by definition have at least two processors), and looks on target to double last year's turnover of $56 million.

CW SHARES TABLE

Index: 104.52 Change: -0.01

1980 High	1980 Low	Stock	Price	Ch'nge	1980 High	1980 Low	Stock	Price	Ch'nge
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

The table shows the closing prices in London and New York last week. The share index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted for capital issues where necessary.



Line Printer | Matrix Printer | Ink Jet Printer | Qume's Sprint 5

When you buy what is regarded as the best daisywheel printer terminal in the world - the Qume Sprint 5, you expect a backup service to match. ISG Data Sales Ltd., your official UK distributor of Qume terminals, provide just that:
- On-site installation, commissioning, service and maintenance by our own trained engineers
- Fast response to service calls
- Maintenance contracts
- Ex-stock delivery of Qume terminals, accessories and supplies
- Purchasing or leasing options
- THE MOST COMPETITIVE PRICES AROUND. FROM £1805 installed (Excl. V.A.T.)

The Qume Sprint 5 offers:
- Letter perfect printing at 45 or 55 cps
- Over 50 different type styles including APL, scientific symbols and international character sets
- Smart microprocessor utilisation for powerful flexibility
- 43 Qume-defined commands for operator control
- Convenient switch selectable functions on front panel
- Built-in diagnostics
- Serial or parallel interface
- MultiColor ribbons

If you want to be ahead of your time, ask for Qume - from ISG Data Sales, your official UK distributor.

Qume
isg data sales ltd
Telephone: Windsor (07535) 57955
Telex: 849110

OP SPOT

by Bernard Allen

Sound advice and training for the op and manager

THE matter of operator training is given the scantest of attention at far too many installations. And this is ridiculous bearing in mind that operators have to know about hardware, software and applications in order to do their work properly.

The merits and defects of various operator training methods are discussed in a portfolio from Auerbach.

Called Operator Training: An Overview, it is one of the latest updates to operations data centre management, and has a lot of good, sound, practical advice for operator and manager alike.

The author stresses the importance and value of operator training, pointing to the high cost of operator errors and the need to keep users happy.

24-hour cover

He points out that there are a number of problems peculiar to the training of operations staff. The first relates to the scheduling of courses, bearing in mind the fact that operators often have to work shift patterns providing 24-hour cover.

"One of the most obvious differences between operations and jobs in other areas of DP is the need to staff it 24 hours a day and often seven days a week."

The nature of the role played by the operations department makes for further difficulties. Whereas the end-of-project "lull" is the best time to train programmers and analysts, no such opportunity exists for the operators as the work flows in and out of the department at a consistent rate all year round.

"In this respect, the operator's job is more like that of a manager than a programmer. Unless the operator's shift is over-staffed, it is difficult to free him for more than a few hours training at a time. Extended absences of one or more operators can seriously affect the performance of the department.

Again comparing programmer and operator, he says that software developments over the past 20 years have served to isolate the programmer from hardware and software changes.

The operator, however, has to contend with changes to the operating system which make training and retraining a necessity.

"The basics, such as how to hang a tape or how to load paper in an impact printer, are relatively stable and easy to learn, but an operating system conversion that may be transparent to a programmer could require a substantial retraining of all operators."

In addition to operating system differences, there are differences in installation standards and procedures which make it difficult for the operator to transfer his skills from one site to another.

Rules

"Unlike system programmers, operators frequently do not know which differences are the result of installation standards or arbitrary rules.

"An operator may use a command that was a standard practice at his old installation, only to discover that it is forbidden at his new company; or he may forget that 'Class A job' meant one thing there and another here."

The various methods of operator training, as outlined by the author, are: On-the-job training, on-site classroom training, off-site classroom training and self-study courses.

On-the-job training is the most widely-used method but, as the author points out, it is too often used as a euphemism for little or no training at all.

Disadvantage

"At it's best, on-the-job training is the ideal presentation medium for teaching certain skills. It is unmatched for teaching manipulative skills such as operating I/O devices. Superfluous material is avoided because the trainer need only cover the hardware and software used in the installation.

"On the negative side, operators taught exclusively on the job rarely develop an adequate understanding of the underlying concepts. They have learned only to respond to external stimulus — if you see this message, enter that command."

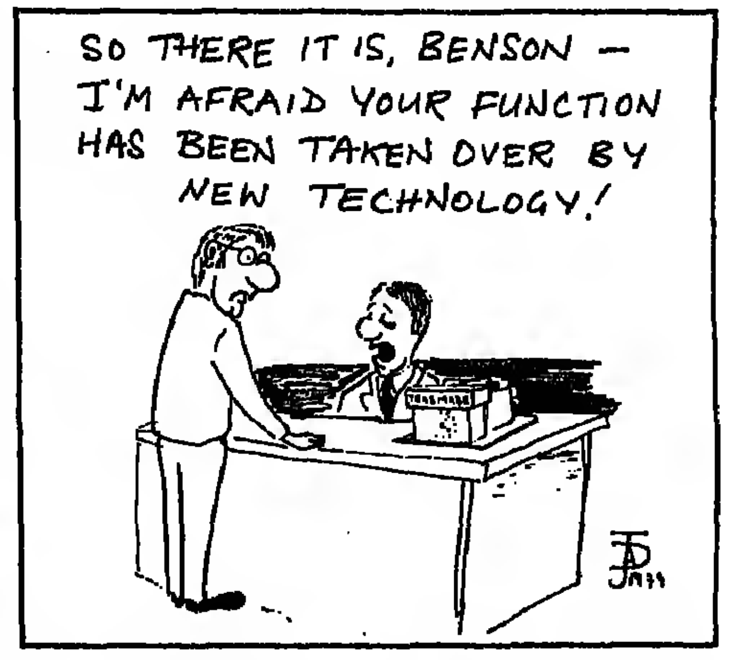
Off-site classroom training is becoming an increasingly less popular medium for operator training. One disadvantage of it is that the typical class comprises persons with a wide variety of backgrounds and experience, and so the lecturer has to choose a "middle ground" and ends up satisfying no one's needs.

The main advantage of on-site classroom training are low development cost, ease in modify course material and interaction between lecturer and students.

It does, however, have several disadvantages: the quality of the courses depends largely on the quality of the instructor, the pace is too fast for some students and too slow for others, and the need to present material is often considerable.

A good self-study course is written from the operator's viewpoint and has a lot of examples, showing where and when commands should be used.

"Self-study courses allow the student to proceed at his or her own pace, reviewing material as often as necessary. Since all students use the same material, training is more uniform and not dependent on the whims of the instructor.



Do staff associations represent workers better than unions?

TRADE unions or staff associations — which of the two is more likely to cater for the needs and appreciate the problems of computer staff, particularly operators?

Staff at the Nationwide Building Society in Swindon (CW, August 7) are certainly in no doubt about the answer to that. They recently voted overwhelmingly in favour of being represented by the white collar union ASTMS — rather than their staff association, NBSSA.

In a ballot carried out at the centre some 74% of the staff indicated that they wanted ASTMS to officially represent them in all negotiations.

Unfortunately, from their viewpoint, the Advisory, Conciliation and Arbitration Service, ACAS, turned down the union's bid for offical recognition on the grounds that it would upset negotiating procedures at the company.

The arguments against staff associations are well known to people who take an active interest both in staff affairs and the computer industry in general.

Many computer staff contend that staff associations just don't appreciate the problems peculiar to the operations function.

Staff associations, it seems, tend to consider the shift allowance a perk rather than taking the more realistic view that it is an inadequate compensation paid to operators for having their social and home lives disrupted by shift work.

Unions, on the other hand, do at least attempt to understand the implications of working in the operations department; although, as I see it, the only way of knowing what it's like working 24 hours a day, sometimes seven days a week, in the busy and often hectic operations department is actually to do it yourself.

This is a time when many are very concerned about new technology and its effect.

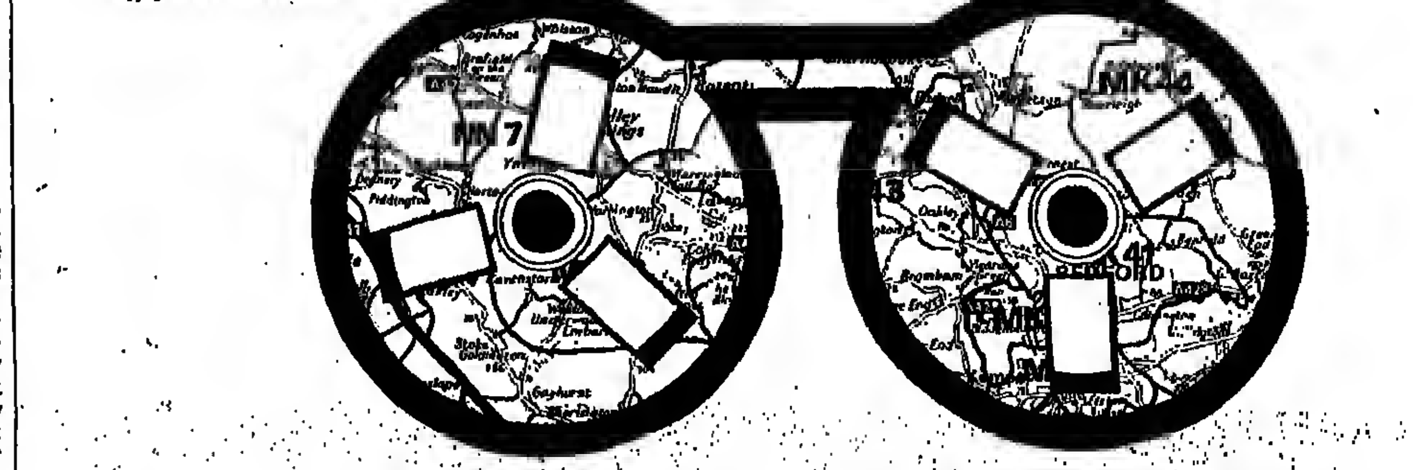
Operators, we're told, will be the first to go as the result of developments in technology. That remains to be seen. My own view is that the role of the operator will change and be recognised as being of a more technical nature.

Trade unions inevitably have a big part to play in ensuring that the skills of the operators are used and developed along with the technology.

It goes without saying that there should be some sort of organisation representing operators and operators alone.

But, as we all know only too well, in the light of salaries and career progression opportunities, no organisation exists or is likely to do so in the near future.

Copyright reserved, John Bartholomew & Son Ltd.



Could you analyse and index 22 million addresses countrywide, street by street? This is what the Postcode does. And the results are at your disposal.

FOR POSTCODE READ STATISTICS CODE.

If you are concerned with any statistical analysis that is based on geography you ought to look into the Postcode. You could find that a lot of the ground-work has already been done for you.

The Postcode system can define whatever size of area you require. It will quickly and precisely identify the location of your customers. You can then plot density and distribution - or sales or buying patterns - for any part of the country; compare sales performance; or analyse advertising effectiveness on a geographic basis. The possibilities are endless.

In the Postcode you have a system that is ready-made, complete, and constantly updated - with maps, delivery point data and computer tapes, that you can buy. Already, several firms are finding these things helpful. You could do the same.

For a start - send us the coupon, and we'll send you our booklet which tells you how Postcode can help you in your business.

Use the Postcode - you're not properly organised without it!

I am interested to see how Postcodes could help me in my business. Please send me your booklet "Using Postcodes in Business Systems".

Return the coupon to Cledwyn Davies, FREEPOST, *(No stamp required)* Room 446A, Postal Headquarters, St. Martin's-le-Grand, LONDON EC1B 1HQ.

Name
Position
Company
Address
Postcode

Royal Mail
F CW/14.8

IBM 'not to proceed with 8100 as it is' prediction

AFTER declining in 1979, sales of the Syfa business system by Computer Automation have picked up considerably, mainly due to a boost in export sales.

Syfa is offered primarily to IBM users as a more powerful and flexible alternative to the IBM 8100 distributed processing system and a key feature is full support for IBM's Systems Network Architecture.

Two big IBM users in the UK that have opted for Syfa in preference to IBM kit are Tesco and Rowntree Mackintosh.

George Dashell, vice-president of the firm's Commercial Systems Division, doubts if the IBM 8100 will ever be installed in large numbers. "I suspect IBM will not proceed with the 8100 as it is," he remarked. "I think it will be superseded by a very small 4300 machine."

He does not see the software compatibility between such a machine and the host IBM mainframes as making Syfa a less attractive alternative.

Dashell is also unconcerned about IBM making changes to SNA that could render Syfa obsolete. "A change in SNA would harm IBM more than Computer Automation. A radical change to SNA would be devastating for users and IBM would only do it if it were terribly hurt by Syfa. But to IBM Computer Automation is no more than a mosquito bite.

"Computer Automation's biggest challenge in the US has been building a marketing organisation for Syfa. If IBM had had a system like Syfa it would have sold 150,000 units by now. We used to be a centralised project oriented company but we are now setting up district sales offices throughout the US and have completely changed our marketing management."

Despite this decentralisation, it will continue to be interested only in selling Syfa to customers wanting at least five units. The early orders were for considerably more than five.

METHVEN: "I like the OEM business and I don't mind people thinking that it's cruddy and unglamorous. We keep on growing . . ."

David Methven, president of Computer Automation, founded the company in 1967 after leaving the Southern California firm Decision Control, shortly after it was acquired by Varian Associates and renamed Varian Data Machines.

According to Methven, the Varian takeover put an end to expectations that he and several of his colleagues had of getting shares in Decision Control. So they quit.

Methven is an engineer by profession and at Decision Control was in charge of the development project that produced the 620i machine that Varian sold for several years. Varian Data Machines was bought by Univac in 1977.

The history of Computer Automation has closely followed the development of the OEM business and the firm is probably best known for its Naked Mini family of low cost OEM machines. But, in the last few years, Computer Automation has also been active in the end user market with its Syfa business system.

Here, KEITH JONES talks to David Methven about Computer Automation's recovery after a bad patch.

Naked Mini firm is on way up again

LOOKING back on a financially grim 1979 fiscal year, Computer Automation president David Methven listed several causes for the firm's \$4.2 million loss.

According to Methven, it outgrew its existing financial control procedures, there were problems with the control of the firm's Naked Mini manufacturing operation and customer accounting was what Methven described as "inadequate". On top of all that, it was heavily overstocked.

Methven commented: "Our inventories are still far too big. We have enough for a year when there should be enough for four months. But we are working on getting inventories down."

At the same time Computer Automation's debt is also being reduced at a respectable pace. According to Methven the firm's financial plan called for the debt to be reduced to \$12 million by the end of June and it was already down to \$10 million by the beginning of May. But Computer Automation's interest payments were still running at a painful \$2½ million a year, a situation Methven found "particularly galling."

On the brighter side Methven pointed out that interest rates in the US were now falling and he expressed optimism about Computer Automation's 1980 results.

He was unable to make any firm comment about predictions that the company would achieve net profits of \$4.7 million on a turnover of about \$80 million, although he agreed that the turnover prediction was about correct.

To some extent, Computer Automation has been a classic example of an entrepreneur-run company. But so were Digital Equipment, Data General and Hewlett-Packard and they all succeeded.

The predictions were made by computer industry analyst Faith Griffin of Rothschild, Unterberg, Towbin of New York, who gathers her information from Computer Automation's customers and financial personnel.

While factors like interest rates are largely out of the company's control, measures have quite clearly been taken where possible to improve Computer Automation's performance, including a management shake-up in which a number of heads rolled.

Commenting generally on Computer Automation's performance over the last 10 years, Methven said: "To some extent Computer Automation has been a classic example of an entrepreneur-run company. But so were Digital Equipment, Data General and Hewlett-Packard and they all succeeded."

Methven believed the reason for Computer Automation's less impressive growth over the last decade compared with competitors like Data General was the fact that it did not go public until 1972.

According to Methven, Computer Automation tried to go public in 1970 but was thwarted by a stock market slump at that time. He remarked: "The net worth of Computer Automation at that time was only \$200,000 which looked very bad when we were trying to sell, say, \$1 million worth of OEM kit."

Methven stressed that the Naked Mini division, Computer Automation's OEM minicomputer operation, was still the basis of his business. It still accounted for about 55% of sales and supplied a 400-strong line-up of customers, none of whom provided more than \$4 million worth of business. So the division did not depend on one or a few customers for its survival.

He commented: "I like the OEM business and I don't mind people thinking that it's cruddy and unglamorous. We keep on growing despite competition from Digital Equipment or Data General.

"Moreover, our Commercial Systems and Industrial Products divisions would not exist without the Naked Mini."

Here he was referring to the operation that builds and sells the Syfa commercial system aimed at end users, particularly IBM users, and to the division that manufactures its automatic test systems which have seen an increase in sales of about 40% over the last year.

According to Methven, all Computer Automation's exports are eventually to be made at its Eire plant.

"We chose Eire primarily because of the tax benefits rather than its membership of the EEC, which was not critical. We could have gone to Puerto Rico. We employ about 100 people in Ireland at the moment and our plan is to expand the workforce to 500 or 600," he explained.

Computer Automation also has a small factory in Bombay, located in the Santa Cruz Electronic Export Processing Zone, otherwise known as Seepz.

Seepz was set up for firms that export 100% of their products and offers attractions like easy Customs clearance and very favourable factory rents.

But the biggest attraction for firms from the so-called "developed world" must be the cheapness of the labour.

A big thorn in Computer Automation's side at the moment is the investigation by the US Securities and Exchange Commission. Methven put up for sale 18,000 of his own shares in the company during the 1979 fiscal year and the commission is investigating the possibility that he did so knowing that the company was going to make a loss that year.

This is the second investigation of this sort by the commission. The first happened when Computer Automation announced that sales and profits in the 1974/75 year would be below plan not long after Methven had sold some shares. The investigation was ended after Methven was questioned under oath.

This time Methven is a lot less patient with the commission. "This investigation is costing us between \$20,000 and \$30,000 a month in legal fees and the case could go on for years."

Returning to a much more positive side of Computer Automation's affairs, Methven predicted that its commercial systems division would break even next year, five years after the launch of its main product, the Syfa business system.

THE LEADING EXHIBITION OF COMPUTERS, PERIPHERALS AND SYSTEMS

COMPEC

will be in the Grand Hall OLYMPIA, LONDON Nov 4, 5 & 6, 1980

'80

CAN YOU AFFORD TO MISS BRITAIN'S BIGGEST COMPUTER EXHIBITION?

Sponsored by "Computer Weekly", "Data Processing", "Practical Computing" and "Systems International", and with the support of "Electron", "Electronics Weekly" — all members of IPC Business Press, the world's largest publisher of specialist and business journals.

GET YOUR TICKETS NOW — SAVE MONEY!

If you send your request for tickets now you will pay only £1.50 per ticket (tickets £2 at the door)

To: Compec Tickets, IPC Exhibitions, 40 Bowling Green Lane, London EC1R 0NE Tel 01-837 3636

Address

Tickets £1.50 in advance, £2 at the door. Applications received after October 3rd cannot be accepted.

TRADE ONLY — NO SCHOOL PARTIES — NO ADMITTANCE UNDER 16

ALL CHEQUES/MONEY ORDERS TO BE MADE PAYABLE TO IPC BUSINESS PRESS LTD IN UK STERLING

INDIAN SCENE

Report by Tim Palmer

Software company set to move into West Europe

Indian computer installations are totally unisex, and plenty of liberated, albeit sareed ladies adorn them. The console of the ES-1033 (in Cyrillic EC) bears a more than passing resemblance to that of an IBM 360.

COMPUTRONICS, the Indian software and services company which has grown big on the import of Russian computers, is ready to expand its business into Western Europe.

Last August it began assembling Mael 2000 computers from Italy in SEEPZ, the Santa Cruz Electronic Exports Processing Zone in Bombay, and has so far built the first 25 of the 50 contracted.

SEEPZ is a "free trade area" close to Bombay's Santa Cruz airport. Work done there must be 100% for export, and companies setting up there benefit from low rents, fast Customs procedures with inspection being done on-site rather than at the airport or port, and good communications with the rest of the world.

Other companies manufacturing or assembling in SEEPZ include Burroughs and Systime. Burroughs is currently manufacturing a new printer designed in France, for use around the world, and Systime is assembling systems and doing software development in connection with contracts in the Middle East.

Cunning design

"The Mael systems are being sold in Yugoslavia and the Far East," says Computronics managing director Piyush Singhal. "We have exported systems to the value of five million rupees — £280,000. We take in sub-assemblies and then assemble and test the systems."

The Mael 2000 is called the Ravi-2000 when built by Computronics. It is a desk-top microcomputer with software cunningly designed to get the most out of the Fairchild F8 8-bit microprocessor, which cycles at a rather slow two microseconds. It has a full screen, keyboard, two 250K-byte built-in floppy disc drives and is programmed in a macro-assembler. A tape unit and a 120 cps printer are offered as options.

"The agreement with Mael represents our first attempt to collaborate with Western European companies. We are writing a building construction software package on behalf the Mael subsidiary in West Germany; the work will be done in Frankfurt, and we are planning to open a Western European office shortly to seek further contracts of this kind. The office will either be in Frankfurt, to be close to Mael there, or in Brussels," says Piyush Singhal.

Replaced

Computronics' main businesses are operating bureaux in Delhi, Bombay and Allahabad, importing computers from the Soviet bloc on behalf of other Indian customers, and writing software under contract to the USSR.

"We have done more than 20 million rupees' worth of software for the Russians and we plan to do another 20 million this year," says Piyush Singhal, managing director of Computronics.

The ES-1030 in Bombay has now been replaced with an ES-1033 (CW, July 6, 1978), and Computronics also has an ES-1022 in New Delhi and an ES-1010 at Allahabad in Uttar Pradesh. In addition it runs a second ES-1022 in Bhilai, Madhya Pradesh State, on behalf of Bhilai Steel.

All machines are IBM 360-compatible. The ES-1022 is rated equivalent to a 370/138 by Computronics. However, this may be optimistic as reports from France rate it as about the same as a 370/125. The ES-1010, made in Hungary, is a minicomputer based on the French CII Mitra 15, adapted to retain compatibility with other models in the ES unified range of the Comecon countries.

Memory

Computronics rates its new ES-1033 as approximately equivalent to an IBM 370/148 (CW, February 28), but others have rated it below a 370/138.

The 1033 at Computronics has 512K-bytes of main memory, and the processor cycles at 300 nanoseconds. It is backed by six 29-megabyte disc drives from Bulgaria, and six 800 bpi tape drives.

There is also a local VDU controller currently supporting four VDUs and the machine also supports two 900 lpm line printers and two 1,200 cpm card readers.

It is running under release 4.1 of the OS/ES operating system, which is equivalent to release 21.8 of OS/360.

The ES-1033 is a member of the Rjad-2 line, the second generation of the Comecon countries' unified range, and comes with semiconductor memory rather than core. Computronics describes it as a very good, trouble free system.

The company now wants the virtual storage version, called the ES-1035, which runs under the OS/ES/VS version of the operating system. This machine would probably go to Delhi, and the 1022 there would probably go to Allahabad. Demonstrating once again the sturdy independence of the Indians, Computronics' own engineers have almost doubled the main memory on the 1022 at Bhilai by using Indian-built add-on memory.

The ES-1033 is used for local time sharing services and batch business data processing for outside clients, and also for software developments.

"We have done more than 20 million rupees' — about £1,125,000 — worth of software for the Russians, and we plan to do another 20 million rupees' worth this year," says Piyush Singhal. In addition, other users of Soviet computers imported by Computronics, Operations Research Group of Baroda, and the Administrative Staff College of India in Hyderabad, have paid for their computers with software developed under contracts from the Soviet Union.

... of the robust type shown here, are attached to the ... at Computronics

COMPUTER WEEKLY is holding its Annual Ball on Friday, October 10 at the Royal Lancaster

Computer Weekly is holding its fifth annual Ball. Last year nearly 700 people attended what has come to be regarded as the computer industry's big night out.

This year the Ball will again be held under the patronage of the British Computer Society. And proceeds will once more be devoted to a deserving cause associated with the computer industry.

So why not help us to help others? And at the same time enjoy a pleasant evening with friends and colleagues.

Order form COMPUTER WEEKLY Annual Ball

Tickets are available at £19 for a single ticket. Included in the price is a dinner, cabaret and dancing until 2 a.m.

Please send me . . . . single tickets at £19 per head (enter number required).

Please reserve . . . . table(s) for me (10 places at £19 per head).

My cheque for £ . . . . is attached. (Cheques should be made payable to IPC Business Press)

Please send the tickets to me at the following address:

Name

Company

Address

هكذا من الأصل

When completed this order form should be returned together with your cheque to Harry Hutson, Advertisement Manager, Room 13, Dorset House, Stamford Street, London SE1 9LU

THE Monotype HS80, a hotel billing and reservation system from Monotype Communications, is to be marketed in South-East England by Comprehensive Computer Hotel Systems. The system is intended specifically for middle range hotels of 50 to 160 rooms, and Monotype Communications will provide full training, engineering and software support to all CCHS installations.

The first hotel to be equipped with an HS80 by CCHS is the Curzon Hotel, Mayfair, London which has 75 rooms. The £13,000 system includes dual floppy disc drives and a Centronics 702 matrix printer and provides online access to information such as room availability for up to 18 months ahead.

Viewdata software needs UK agent

A MARKETING partner is being sought for a viewdata software system developed by Hood Micro Systems of Feltham, Middlesex (CW, August 7). The four-man firm is talking with a multinational organisation, but is looking for other UK companies to talk with.

Andrew Ward, one of the four who set up on their own after leaving Compelec's engineering department 18 months ago, told Computer Weekly the system had been developed alongside the contract work for hotels that had been the firm's bread and butter and which had many parts in common with the contract systems.

For example, an interface between the North Star Horizon micro and the 30 megabyte Micropolis eight-inch Winchester disc drive was in the final stages of development and would be used both in the hotel front-office system, designed to handle guest billing and management reports, and in top-end viewdata systems holding up to 30,000 pages and selling for around £10,000 to distributors.

The low-end system holds 400 pages on floppy discs and would sell to distributors for around £5,000. Features include editing software supporting four simultaneous users, with aids to graphics production such as block move and replace which allow shapes to be built up with groups of graphics characters that can be repeated elsewhere on the screen, either the same way up or as a mirror image.

As well as intelligent editing, the system is designed to provide either a private viewdata system with up to eight user ports for dialling into or an automatically cycling display feeding up to five cable television channels.

The television channels can have any number of television sets attached and each channel can carry a separate sequence of pages taken either from local store or retrieved automatically from Prestel at preset times.

Printer interface for ICL hosts

FOLLOWING the changes in ICL's foreign attachments policy forced on the company by the Office of Fair Trading (CW, July 3), printer manufacturer Mannesmann Tally of Reading is now offering a "black box" interface with its printers that enables them to be connected to any ICL host that can support the ICL 2430 chain printer.

But ICL says that it will charge users that install Mannesmann Tally units the licence fee for local connection of foreign peripherals agreed with the OFT. The fee works out at 16% of the hire charge of the equivalent ICL unit, including maintenance.

The interface offered by Mannesmann Tally is the MI4801 unit from Micronology of London, which says that it can be used to connect any parallel printer working to a basic handshake protocol to most ICL processors, including the 2903/4/5, the ME29, 2950 and 2958. Apart from Mannesmann Tally other printer makes that could be connected include Dataproducts, Centronics and Documation.

According to Micronology, Centronics itself is unlikely to offer the MI4801 interface to ICL users because of its OEM agreements with ICL but there is nothing to stop Centronics printers being sold to ICL end-users by Centronics distributors.

Micronology has also had exploratory talks with Documation which could ultimately lead to Documation's printers being available to ICL users, including Documation's 3000 lpm model. One obstacle could be an agreement under which Documation currently supplies parts to ICL.

Mannesmann Tally printers now available to ICL users include the 300 lpm T3000 combinatrix printer with full upper/lower case capability.

Rheumatism analysis system developed

RESEARCHERS at Leeds University have devised a medical computer system which speeds up analysis of the forces on a human joint from a matter of days or weeks to a few minutes.

The system is used in measuring, for example, how much a joint has been weakened by rheumatism; it may also be used in evaluating methods of treatment. It is brought into operation by a patient crossing a walkway with two force platforms built into the floor. His movements are recorded by the force platforms, a camera and electrodes attached to his muscles. From this data the computer then calculates the forces at the joint under investigation, and displays the results on a Tektronix graphics display and a Ferranti digitiser tablet.

The computer used is a Systime Series 1000 with 64K-bytes of memory, two 2.4-megabyte cartridge disc units and a keyboard printer.

The system belongs to the Bioengineering Group for the Study of Human Joints at the University of Leeds. It is the brainchild of Dr Babas Seedhom, a lecturer in the departments of medicine and mechanical engineering, and Malcolm Ellis, a research fellow in the Rheumatism Research Unit, and was implemented by Dr Adrian Wilkins, a senior manager in Systime's development department.

Micro drives typewriter

A BANK of solenoids mounted on a printed circuit board is the basis of a device called Key-Pak from Capital Computer Systems of London which enables a microcomputer to drive an ordinary electric typewriter as a printer. The device costs £374 and it works by sitting on top of the typewriter keyboard so that the solenoids can drive the keys.

It was one of the selection of microcomputer systems, software and peripherals shown by 30 companies at the Association of London Computer Clubs Fair. Apple, Tandy and Pet interfaces are available for the Key-Pak and an RS 232 serial interface is planned.

Olivetti-IPL deal welcomed

WELCOMING the agreement under which Olivetti takes a one-third stake in mid-range IBM-compatible computer manufacturer IPL Systems, founder and president Steve Ippolito said: "The deal signifies that Olivetti likes our product. It also indicates that the European market looks good to them."

Ippolito founded IPL in 1978 after working for Cambridge Memories for nine months. Cambridge's 40% stake in IPL was bought back by the two principals, who sold most of it to Olivetti. IPL principals now own 60% of the stock.

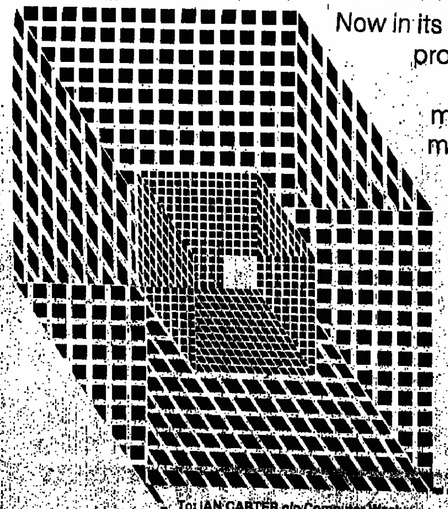
IPC Electrical Electronic Press present

MICROSYSTEMS'81

Exhibition & Conference

at the Wembley Conference Centre

March 11-13,1981



Now in its fourth year, Microsystems provides an annual forum for buyers and users of microelectronic products to meet and do business in the comfortable and spacious surroundings of the Wembley Conference Centre.

If you are a supplier of hardware and software microprocessors, memories, interfaces, peripherals or software,

YOU SHOULD BE EXHIBITING AT MICROSYSTEMS '81

To: IAN CARTER c/o Computer Weekly, Dorset House, Stamford Street, London, SE1 9LU Tel: 01-261 8109

Please send me Microsystems '81 exhibition details

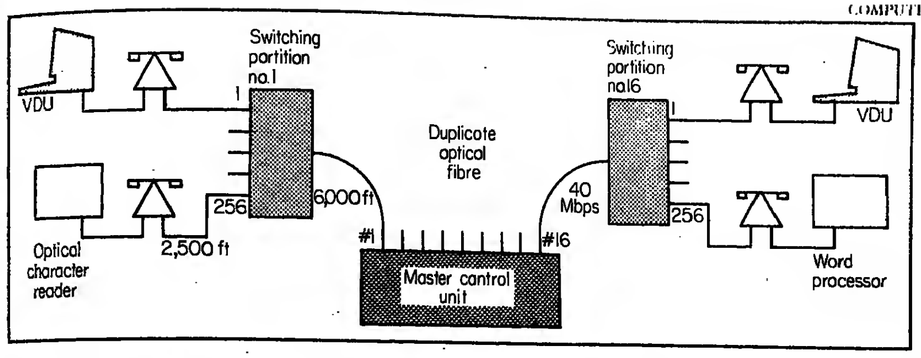
Name:

Company:

Address:

Tel:

For further exhibition details fill in and return the coupon. For conference details write or telephone: Mr. A. Swain, IPC Conferences Ltd, 40 Bowling Green Lane, London, EC1R 0NE Tel: 01-837 3636



THE rate of change in telephone switchboard design hes been so greet in the lest few years thet many offices could find the "traditionel" private branch exchenge replaced by a computer besed exchenge thet is the heart and brain of en electronic office.

Morris Edwards looks et the latest chapter in the development of PBXs.

Called the Integreted Business Exchenge, it differs from other digitel PBXs in that it uses distributed switching architecture and the digitising of the voice et the telephone handset. Edwerds also looks at other offerings.

ASOVE, loft, is o diogram of Intercom's IBX system. It has a master control unit and up to 16 switching portitions. Each partition can support 256 ports at 128K-bits per second. Telephone conversations are digitised at 64K-bits per second at the hondset and combined with data at up to 65K-bps. The remaining 8K-bps is used for housekeeping.

'Heart and brain' of the electronic office

by Morris Edwards

IT'S a kind of rags-to-riches story: the transformation of yesterday's lowly telephone switchboard into today's computer-based PBX, the device most likely to emerge as the heart and brain of tomorrow's automated office.

When viewed in the context of communications' 100-year-plus history, the transformation has occurred virtually overnight. As late as 1968, AT&T's manufacturing arm, Western Electric, was building cord switchboards, whose operation had remained essentially unchanged since the turn of the century. Since then we have gone from automated PBXs using electro-mechanical switches to computer-controlled electronic switching, leading finally to the digital PBX, which converts the analogue voice signals to digital form before switching.

DISTRIBUTED SWITCHING

Now the latest chapter in this communications saga is about to be written by a new Exxon Enterprises company called Intercom Inc of Dallas, Texas. Intercom's claim to fame is the Integrated Business Exchange, IBX, which the firm describes as "the 1980s generation of switching equipment, solving the requirements of intra-facility and inter-facility voice and high speed data communications in one integrated system."

Features that distinguish the IBX from other digital PBXs include the use of a distributed switching architecture and the digitising of voice at the telephone handset. Also, the IBX's packet-switching capability permits format and protocol conversion, so that incompatible devices may communicate with each other — adding greatly to the system's utility in the automated office.

The IBX architecture uses redundant 32-bit processors with four megabytes of memory in the Master Control Unit, MCU, which operates with up to 16 distributed Switching Partitions, SPs. Each SP employs a Zilog Z80 microprocessor and can handle 256 ports, giving a total system capacity of over 4,000 ports.

User handsets connect to the local SP via a simple two-pair wire, which can carry a 128K-bps data stream. Telephone conversations are digitised at 64K-bps, and another 8K-bps is needed for housekeeping, leaving 56K-bps for data transmission from a terminal, word processor or other device attached to the special handset, which Intercom calls an ITE (for Integrated Terminal Equipment).

Because of this multiplexing arrangement, a user can continue with a telephone call while simultaneously transmitting or receiving data over the same line. The ITE offers standard business machine interfaces and can handle synchronous or asynchronous communications at any rate from 110 bps to 56K-bps.

Traffic between the SPs and the MCU travels at 40 megabits per second over optical fibre links which may be up to 6,000 feet long.

In addition, the ITE may be located up to 2,500 feet from the SP, which means that the ITE-to-ITE span of the IBX can be about three miles. The IBX's switching schema is particularly well suited to multi-storey office complexes since a switching partition could be installed to serve each floor of the complex.

Other digital PBXs handle voice and data, according to Tom Aschanbrenner, Intercom's marketing vice-president, but they are designed primarily for telephone conversations, and the different characteristics of data transmission cause problems. For instance, the long holding times associated with batch transmissions upset the switching matrix, causing "blocking", a condition where two idle lines cannot be interconnected because all possible paths between them are already in use. Conversely, the short holding times associated with interactive applications create havoc with the PBX's control system.

MATRIX IS NON-BLOCKING

In contrast, the IBX switching matrix is such that, even with simultaneous voice and data operations at all 4,000 ports, it remains non-blocking, Aschenbrenner claims. The control problem is resolved by the distributed architecture, with the 32-bit processors handling the important functions and offloading the less important, but time-consuming, functions to the microprocessor-based units.

Intercom plans to begin delivery of the IBX systems during 1981. In the meantime, industry observers in the US are attempting to measure the announcement's impact on the PBX market and the likely response from rival suppliers.

AT&T is known to be developing a digital PBX, codenamed Antelope, for introduction in two or three years. Besides handling integrated data and voice communications, Antelope will reportedly have information distribution capabilities similar to IBM's Model 6670. In the meantime, Bell is plugging the gap with digital PBXs acquired from GTE Automatic Electric.

Currently, the leading suppliers of digital PBXs are Northern Telecom, with its SL-1, and Rolm Corp with its CBX (Computerised Branch Exchange). Last year, Northern Telecom unveiled an addition to its SL-1 digital PBX that permits integrated voice and data switching. Operating at up to 9.6K-bps, the data feature can be added to existing SL-1 systems without changing operational software.

USES EXISTING PROCESSOR

Rolm claims to have installed twice as many digital PBXs as its nearest competitor, with well over 2,000 of its CBXs already in the field. Last May, the firm introduced Release Six software for its CBX, enabling users to send, process, store and receive written memos via the office's telephone system.

Known as the Rolm Electronic Message System (REMS), the integrated office communications system makes use of the CBX's redundant computer as an applications processor. To send and receive messages, users simply plug video or hard copy terminals into their CTS-100 digital electronic telephones.

Perhaps the biggest question mark hovers over the plans of IBM, which seemingly missed a major opportunity in the US PBX market of the mid-1970s by restricting its sales efforts to Europe. Records of IBM's management committee meetings in the 1971 timeframe, which became public during the antitrust litigation, indicate that IBM was then considering introducing its 3750 into the US market. However, it was felt that the 3750 could not be competitive with Bell PBX offerings without jeopardising IBM's internal guidelines for profitability.

In retrospect, IBM's perception that the user would be unwilling to pay a big premium over the Bell PBX price was probably wrong, in the opinion of Ken Bosomworth, publisher of the bi-weekly newsletter *Electronic Mail and Message Systems*. "Customers have demonstrated over and over," he says, "that they are willing to pay fat premiums in order to get the PBX functions which they want, many of which the 3750 offers."

ADVANCED FUNCTIONS

With its analogue switching and requirement for air-conditioning and false floor, the 3750 is technologically obsolete, but it offers the advanced functions common to modern PBXs. Also, when interfaced with a host computer, it allows push-button phones to collect data and/or interrogate system files.

Further, the 3750 can control a variety of sensor-based security and environmental control devices in a building, and record attendance or monitor job activity through the use of online badge readers.

Last year, IBM announced its small-scale 1750 PBX, again using analogue switching. Bosomworth sees the 1750 as an interim product, designed to hold, and perhaps expand, IBM's position in the small to medium part of the market.

"With the 3750 still selling in the top end of the European market, and the middle and bottom end of the market now covered by the 1750, the script does not call for a new product introduction for the next year or two by IBM," Bosomworth states. However, he believes it logical for IBM to introduce a major new PBX product line in the early 1980s, since the PBX market is too large for IBM to ignore and the technology is gravitating towards all-digital concepts which IBM is well placed to understand and exploit.

"And this time," Bosomworth concludes, "it would probably make sense for IBM to introduce its next PBX equipment models in the US first, with European marketing of them to follow a year or two later."

Twin threat to telephone answering services

TWO telephone systems that are said to be able to perform secretarial tasks for users are being planned by Bell Telephone of Pennsylvania, a subsidiary of AT&T.

The two systems, known in the US as call answering and advance calling, pose a threat to telephone answering services and to the telephone answering business.

Such systems are known in the US as electronic voice mail.

The self-answering system is said to answer automatically the user's telephone when the line is engaged, or after a specified number of rings if the user is unable or does not wish to answer immediately. The telephone then plays a recorded message that instructs the caller to give a message which is electronically recorded and can be played back at the subscriber's convenience when he dials into the telephone company's computer system asking for his file of messages.

The second system, advance calling, is said to enable a subscriber to record a message to the phone company's computer. This message can be automatically forwarded to a specified telephone number at a specified time.

Neither service requires that additional equipment be installed in the subscriber's home. Also, both dial and touch-tone telephones can be used to access the central computer.

300 bps modem

A FULL DUPLEX two-wire 300 bps modem that fits inside an ordinary telephone has been launched in the US by UK-owned Racal-Vadic of Sunnyvale, California. Racal has no plans to introduce it in the UK because it could not be approved.

DATA PREP.

Computing has a vital role to play in education today. Opportunities for students to learn skills vital to their futures are offered by the increasing study of both processing systems, in schools and colleges.

Now there's a unique magazine that reports on this whole of the educational computing scene, called not surprisingly Educational Computing.

It's required reading for tutors, students and suppliers alike. Hardware, software, courses, languages and applications all are investigated, reviewed and reported upon.

Keep in touch with all the new computing developments in education today. Subscribe now to Educational Computing.

Educational Computing

Contact Xenia White

marketplace

For Advertising Rates PHONE 01-261 8757

SK DEC SYSTEMS FAST!

SK COMPUTER SYSTEMS LTD

- PDP 11 BASED COMPUTER SYSTEMS
- FULL RANGE OF SOFTWARE
- PER CALL OR CONTRACT MAINTENANCE AVAILABLE
- WIDE RANGE OF DEC COMPATIBLES

YORK HOUSE, STEVENAGE ROAD
HITCHIN, HERTFORDSHIRE, SG4 9DY

telephone 0462-31116 telex 825647 Sk Sys

digital systems and compatibles in stock

PDP 11/04 /34 /60 /70 COMPUTER SYSTEMS

COMPETITIVE DELIVERY & PRICES

FAST DEC! FROM Systek

HR House, High Road,
North Finchley, London N12 0AZ
Tel: 01-349 2911 Telex: 28227

CHELTENHAM

PRESTIGE REGENCY OFFICES TO LET

Central position. Luxuriously refurbished
Car Park on premises
Computer Room
Approximately 6,000 sq. ft. Fully carpeted
Special attractive terms to early occupant

Telephone:
Mr. S. G. Crook, Gerrards Cross 86561
Or after business hours: Rickmansworth 73681

IBM PRINTING PUNCHES

	Rental (Inc. Maintenance)	Purchase Price
129 BUFFERED PUNCH/VERIFIERS	£120p.m.	£2595
029 PRINTING PUNCHES (VARIOUS CODES)	£75p.m.	£1950
029 PRINTING PUNCHES	£45p.m.	£875

SORTERS — INTERPRETERS — VERIFIERS

DEC TERMINALS

LA34 DECWRITER IV K.S.R.	£49p.m.	£725
LA36 DECWRITER II K.S.R.	£58p.m.	£995
LA180 DECWRITER RO	£75p.m.	£1295

FOR BROCHURES & FULL LIST INCLUDING RENTAL DISCOUNTS
Tel: 0268-710292 Telex 99463

C.D.L. COMMERCIAL DATA LTD.
Downham Road, Ramsden Heath, Billericay, Essex

DATA GENERAL CS40 MODEL C3

(64KB Nova 3, 1 OMB F.E.O., Diskette LP2 180 cps Printer, 2 x VDU)

16 months old. Still a current model. Only used for software development and demonstrations. Fully maintained by DG.

Box No. 1109

DISC DRIVES FOR SALE

DEC RPO3 Disc Drives, fully maintained by Digital on full commercial contract.

Price £1,000 o.n.o.

Contact:
Mr. D. A. Williams
P.D.C.S.
Faraday Road
Danes Hill West
Estate
Basingstoke, Hants.
Basingstoke 51821

Nelson Computer Services Ltd.

ST. JOHN'S COURT, BACUP ROAD, RAWTENSTALL, LANCS BB4 7PA.

NEW, REFURBISHED AND SECOND USER EQUIPMENT

IBM 029 059-129 Card Punches	Bursters
IBM 37/42 Floppy Disk Key Stations	Decollators
UNIVAC 1701-1710 VP/VIP	Guillotines
DECISION DATA 8010 9810 Card P/V	Shredders
BURROUGHS PC 820-820 Card P/V	Data Storage
KODE Paper Tape Equipment	Fire Safes
Teletype ASR 33	Printer Ribbons
Hand Punches	VDUs
Line Printers	[illegible]
Serial Printers	VDU Desks

PHONE FOR BROCHURE AND UP TO DATE STOCK LIST 07062-29125
BUY — SELL — LEASE — RENT — MAINTAIN

VAX 11/780 DEVELOPMENT TIME

Dial up facilities available on VAX11/780.

For details please ring Mr. D. A. Williams, P.D.C.S., Faraday Road, Danes Hill West Estate, Basingstoke, Hants. Tel: Basingstoke 51821.

BUSINESS OPPORTUNITY

Small Subsidiary Company operating as Recruitment Agency specialising in computer personnel to be disposed of as part of a rationalisation plan.

Investor/Manager could acquire the business with all preliminaries complete as a going concern on advantageous terms or would suit a keen and energetic person who wishes to develop a lucrative business in this field to start immediately with existing contracts. Payment out of profits or some similar arrangement would be considered.

Write in first instance to: Box No. 1104

CLEARANCE SALE ROCK BOTTOM PRICES

New System 4 Printer Ribbons
New EDS 60 Disc Packs
All types of second user Disc Packs, Cartridges and Modules.

Various types of Disc and Tape racking
Decollators, Bursters, Teletypes
Tape Cleaner, Paper Baler
Fireproof Data Safes

Telephone: 01-767 6614

Qume
CIFER
digital
OKI
Rohan Computing

Are you legal, decent, honest and truthful?

Advertisers have to be.
The Advertising Standards Authority.

YOUR CHANCE TO PENETRATE THE GERMAN DP MARKET

How difficult and expensive this can be, is known to those who — equipped with misleading data — have attempted to do so.

We are a medium-sized DP organisation, based in Germany, offering services covering bureau operations, mini turnkey systems, software and technical maintenance worth £2 millions a year. We can help you.

We have the expertise, the local connections and the dynamic spirit to ensure further growth. From our prospective partner we expect the provision of capital needed for expansion.

Please write under Box No. 1105

REACH THE COMPUTER INDUSTRY THE EASY WAY

The most economic and efficient way to reach over 92,000 computer people in this country is by direct advertising. Why not place an ad in the C.W.'s

MARKET PLACE

For details of rates and dates
Ring: Xenia White on 01-261 8293

HEXAGON

RECRUITMENT ADVERTISING CONSULTANCY
FACILITIES MANAGEMENT BUSINESS SYSTEMS
SOFTWARE PACKAGES COMPUTER SECURITY
CONTRACT STAFF SUPPORT RECRUITMENT

HEXAGON HOUSE 145 WARDOUR STREET LONDON W1V 3TB ☎ 01-439 3671

DEC and DATA GENERAL

Buy, Sell or Trade
Call Alastair Dods 01-464 0942
Thomas Business Systems, Ltd.

SURPLUS HARDWARE

Computers Bought and Sold

EOB LIMITED

Tel: 0763-44777
Telex: 837753

IBM 029 AND 129 PRINTING PUNCHES

Fully refurbished with maintenance contracts

Tel: (02774) 56861/3
Input Output Data Processing Ltd.

FOR SALE

Hewlett Packard Model 7203A Graphic Plotter 10" x 15", 3½ years old.

Contact: D. East
0453-83-3311

FOR SALE GUILLOTINES

and all other Computer form handling equipment

Call 042-872 3819 and ask for Trina

DEC PDP11

For new/used Processors, Peripherals, Modules or complete systems

Call Peter Stock or Peter Hufton 0602-861774
Dectrade Ltd, 11 Musters Road, West Bridgford, Nottingham.
Telex 377678 VIDEUR.

CASH IN

We pay £70 per tonne for scrap computing listings £95 per tonne for punch cards

Leyton Waste Paper Co. Ltd.
Contact: Mike Bowles, 01-558 2131

NIXDORF 8870 MODEL 1

FOR SALE

CPU64K
10 Megabyte Disk Drive and fixed disk, 1 x VDU, 300 Lpm Printer, Payroll package and stock control in BASIC language.

Contact:
J. Shannon
B. DeCaqueray 0604 583111
Jaspers Ltd
P.O. Box 82
Northampton NN5 5AZ

MANCHESTER INTERNATIONAL AIRPORT AUTHORITY

The Airport Authority is considering the installation of a CPU based system for the processing and control of financial, stores and engineering functions. Suitable manufacturers and suppliers of this type of installation, who have experience of implementing similar systems, are invited to write to the Airport Director, giving details of their experience. It is intended that draft System specifications be circulated to those applicants who can display their ability to implement the above systems to the satisfaction of the Authority, from which list a nominated supplier will ultimately be chosen.
Replies should be received by 22nd August, 1980.

WEBSTER D/P SERVICES LTD.

NEW/USED DP EQUIPMENT
BUY OR SELL THROUGH WDP

NEW DE LUXE 80 COLUMN HAND PUNCHES (EX-STOCK) WDP

01-464 9011
TELEX 896059
WEBSTER D/P SERVICES LTD,
85 WIDMORE ROAD, BROMLEY
KENT BR1 3AA

DATA BADGE SUPPLIES AND SERVICES

MANUAL AND ELECTRIC DATA BADGE PUNCHES, DATA BADGE FILE CREATION BUREAU, I.O. BADGES, LAMINATING, DATA BADGES, PRINTING, ETC., ETC. WDP

ELECTRONIC BROKERS LTD

VDU PRICES SHATTERED

£199
HAZELTINE 1000
The low, low priced teletypewriter — compatible video display terminal with 12" screen (12 x 80) 64 ASCII alphanumerics and symbols.
Full/Half Duplex.
RS-232

£299
HAZELTINE 2000
The world's largest-selling teletypewriter-compatible video display terminal.
Features include: 12" screen (74 x 27) 64 alphanumerics and symbols. 32 ASCII control codes. Switch-selectable transmission rates to 9600 baud. Three switch-selectable operating modes full-duplex, half-duplex or batch. Direct cursor addressability. Dual-intensity video. Tabulation. Powerful editing capability. Remote keyboard.
Selective or automatic roll-up.
RS-232

£425
MODULAR ONE BASIC
12" screen (24 x 80). XY cursor addressing, 64 alphanumerics & symbols. Dual intensity detachable keyboard. Choice of 8 transmission rates up to 9600 baud. RS232. Range of options including lower case (£35.00). Printer port (£70.00).
MODULAR ONE EDIT
All the above plus full edit capability, tabulation, 8 special function keys + many other features £595.00.
POLLING MODELS also available — P.O.A.
ALL EQUIPMENT RECONDITIONED UNLESS OTHERWISE STATED

WE SELL WE BUY

TERMINALS RECONDITIONED — FULLY GUARANTEED

[illegible]

DEC-LARGE STOCKS OF SURPLUS AND USED EQUIPMENT

[illegible]

LARGE STOCKS OF ADD-ON MEMORY, INTERFACES, OPTION MODULES ETC FOR PDP11 AND PDP8 SERIES EQUIPMENT

Electronic Brokers
49-53 Pancras Road, London NW1 2QB
Tel 01-837 7781 Telex 298694

RING 01-439 6481 for

TEMPORARY STAFF — Effectia Gravis provides staff at all levels to cover a wide range of assignments.

- HOLIDAY COVER • COVER DURING SICKNESS
- PHASING OUT OLD HARDWARE • SITE RE-LOCATION
- INTRODUCING NEW HARDWARE • PEAK LOAD COVER.

OPERATORS, TECHNICAL SUPPORT, DATA PREPARATION STAFF, JCL/MACRO WRITERS, SYSTEMS DEVELOPMENT, MANAGEMENT, FACILITIES MANAGEMENT.

PERMANENT STAFF — Our permanent recruitment section can assist you with vacancies at all levels.

- DATA PREPARATION • MANAGEMENT • OPERATORS
- TECHNICAL SUPPORT • DATA CONTROL • PROGRAMMERS
- SYSTEM-ANALYSTS • TRAINEES.

RECRUITMENT ADVERTISING: COPYWRITING, FILE SEARCH.

Top professionals in an established company

EFFECTIA GRAVIS

COMPUTER PERSONNEL CONSULTANTS.
National House, 60 Wardour Street, London W1V 3HP.
Tel 01-439 6481. 24 Hour Answering Service. Lic. No. SE(A)82

CAL computer applications limited

DEC SYSTEM AND VT100s

- ★ PDP11/34 with 128Kb MOS Memory, 56Mb Disc, DZ11 Mux, 4xVT100 V.D.U.s and LA180 Printer. Price £29,000.
- ★ VT100s. Price £1,095.
- ★ RK07-EF Disc Packs: 16 in stock. Price £275.

Contact G. E. Gore—Chorley 78277/70196

POST FORMED LAMINATE SURFACE
CUSTOM DESIGNED — PRECISION MADE

DESK TOPS & UNIT STANDS

TURNER WOODWORKERS LTD.
Mere Mill, Mere, Knutsford, Cheshire
Telephone: 0565 830580

MAG TAPE ENCODING

from 30p per 1000 K/D written/verified

Hermes Computing Services Ltd
Tel: 01-935 0462

Appointments

THE NEWSPAPER COMPUTER PEOPLE RELY ON

Appointments

COMPUTER WEEKLY

Classified Department, Dorset House, Stamford St, London SE1 9LU

Box Numbers: Should be addressed to the box number in the advertisement c/o Computer Weekly at the above address.

Classified Rates: £18 per scom.
18 x 3 cols = £815. 39 x 3 cols = £1,375.
Half Page (18 x 7 cols) = £1,430.
39 x 4 cols = £1,676.
Full Page (39 x 7) cols = £2,550.

Copy Deadline: 3.30 pm Monday prior Thursday publication date. Complete artwork up to 11 am Tuesday. Advanced space reservation is advisable.

LONDON
Assistant Classified Manager
Chris Prin 01-261 6026
Ken Welford 01-261 6057
Ian Faux 01-261 6019
Neil McDonnell 01-261 6024
Denise Smith 01-261 6454
Julia Hannaford 01-261 6802
Kevin McOwan 01-261 6039

MANCHESTER/GLASGOW
Owen Kelly 061-872 6861
Geoff Aikan 061-872 6861

BIRMINGHAM/BRISTOL
Vic Sherst 021-356 4838

The sky's the limit...

Contracts for Analysts and Programmers

IBM	8100 DMS experienced Analyst Programmers for 6-month contract on new development projects commencing August onwards.	C. LONDON
IBM	DOS/VS COBOL + CICS + OL1 Programmers and Analyst/Progs.	S. LONDON + HOLLAND
IBM	Series 1 EDX/EOL Analyst/Programmers and Programmers for development work.	LONDON + HERTS
IBM	Senior Merk IV programmers.	LONDON + BELGIUM
IBM	MVS Systems Programmer for 6-month contract, must speak Dutch.	HOLLAND
IBM	MVS/JES2 Systems Programmer for four-month contract, must have Sys. Gen. experience.	LONDON
IBM	PL1 + IMS Team Leader.	BELGIUM
IBM	COBOL IMS + AOF Programmers.	LONDON
IBM	Sys 34 RPGII Programmers.	ESSEX
IBM	IMS DATABASE Consultant.	LONDON
HONEYWELL	L68 COBOL + TOS/10S Analysts and Programmers to work on long-term development contract.	H. COUNTIES
HONEYWELL	L62 COBOL Programmers for batch and on-line development project commencing August for several months.	BERKS.
HONEYWELL	L66 COBOL + DMIV Analyst/Programmer.	HOLLAND
PDP11	Basic + 2 Analyst/Programmer + Programmer.	FRANCE + LONDON
VENTEK	DATABUS DATASHARE Programmers for 3-month contract commencing shortly.	MIDDX.
UNIVAC	1100 COBOL/DMS Programmer with TIP experience.	HANTS.
H.P.	3000 COBOL Programmers with IMAGE.	C. LONDON

Please call Richard, Morey or Denise for further details. Evenings and weekends call 01-408 0290 and leave a message.

Perm/Contract Vacancies for Operators

WHY KNIGHT FOR OPERATORS?

- ★ Knight is part of BOC's Computer Services Division — large, stable and international.
- ★ We respond at once to requests for staff from companies throughout the U.K. and Europe.
- ★ We're highly experienced — with over 7,000 contracts completed successfully for more than 1,000 top European companies.
- ★ We manage projects — and handle JCL writing and documentation for major conversions, start-up of new installations and run-down of older ones.

PERMANENT VACANCIES

OPERATOR — SURREY
Company requires mature person with experience on Burroughs mini or similar to operate B92. Days only.
Salary: up to £4,000 p.a.

OPERATIONS MANAGER — LONDON, S.W.18
2 years' management or supervisory experience on NCR required.
Salary: c. £10,000 p.a.

OPERATOR — MIDDLESEX
Publishing company require experienced IBM 370 or 3BO Operator to operate 370/138 under DOS/VS with Power/VS. Alternating weekly shifts.
Salary: up to £5,838 p.e.

OPERATOR — ESSEX
Experienced IBM Operator for new installation 370/148 under DOS VSE going over to 4341 in a few months. Good promotion prospects. Excellent company benefits.
Salary: up to £4,400 + 15% shift allowance.
Call Rachel if you are interested in any of the above vacancies or need some advice on career prospects.

U.K. CONTRACTS

PDP 11 RSTS'E — BERKS.
High-level Operations job — long-term contract. Call Joanne or Sue if you have RSTS'E experience or just want to find out more about contract operating.

ALWAYS RELY ON KNIGHTS—Sue Smyth, Rachel Martin and Joanne McKeg-gie are always happy to advise you on contract, permanent or trainee positions.

01-491 4706
OR WHEN BUSY 01-439 3411

Knight Computer Services Ltd.,
14 Old Park Lane, London W1Y 4NL.
Staff Services Division of BOC Datasolve Group and a member of Computer Services Association

Knight

MYRIAD

PROGRAMMERS AND ANALYSTS

HERTS — **£7,000-£10,000**

Our client requires both Programmers and Analysts for their main Computer Centre servicing user requirements throughout the U.K.
Developing systems for a wide range of applications offers job interest and the opportunity of employing both on-line and Database techniques.
For PROGRAMMERS offering:
★ at least one year's COBOL and/or RPG II experience
or ANALYSTS with:
★ the experience of one major project implementation and the desire to advance to interesting system designs
Our CLIENTS can offer:
★ a technically stimulating environment, using some of the most advanced computing facilities available
★ Training where necessary on aspects of Database, on-line and distributive processing techniques
★ Competitive salaries and professional working conditions
A full range of benefits including relocation assistance, also support these outstanding opportunities.
REF: N1/1408

ANALYST/ PROGRAMMERS
(JUNIOR ANALYSTS)

BEDFORDSHIRE — **To £8,500**

Our client requires additional Analyst/Programmers to develop a range of interesting systems.
Offering around two years' COBOL and some experience of analysis, the successful candidates will receive formal training to develop their skills and advance within project teams.
Although IBM experience in either a DOS or OS environment is desirable, consideration will be given to applicants displaying the potential to succeed in a technically stimulating installation.
Promotion prospects are geared to individual performance and application. Working conditions and benefits also contribute to make this a worthwhile step in your next career move.
REF: N2/1408

SOFTWARE PROGRAMMERS

MAJOR DEVELOPMENTS

READING — **START: £7,000-£8,000**

Our client manufactures and markets a diverse range of micro-processor systems for industry. Their success has led to a significant expansion and they are therefore seeking additional software programmers who will become engaged in a major new product development programme.

Most programming will be in ASSEMBLER and you will ideally have experience of working at device level. Awareness of Intel 8085/Zilog Z80/Intersil 6100 or PDP11 will also be useful.

The successful candidates will become involved at product design stage and will have the opportunity to see their ideas through development to large-scale production. Excellent conditions of employment are offered, including relocation assistance, together with good long-term career prospects.

REF: SW3/1408/CW

PROGRAMMERS TO PROJECT LEADERS....

ON-LINE REAL-TIME DATABASE
UNIVAC 1100 & IBM370
DISTRIBUTED MINI's

★ PROGRAMMERS to £7,500

★ ANALYST/PROGRAMMERS to £9,000

★ PROJECT LEADERS to £10,500

★ TIMESHARING SPECIALISTS to £10,500

Based in HAMMERSMITH W6, our client is an international engineering and construction organisation. They make extensive use of large Univac and IBM hardware to develop systems using on-line and database techniques.

Additional Programmers, Analyst/Programmers and Project Leaders are required now at all levels to enhance the development team and to work on a range of major systems.

Timesharing Specialists will provide an internal consultancy service to timesharing users and will design special non-standard systems.

Excellent conditions of employment include: company pension scheme, free life assurance, flextime, paid overtime and interest-free season ticket loan coupled with first-class career opportunities.

REF: SW4/1408/CW

(3280)

SEND TO: NO STAMP REQUIRED MYRIAD APPOINTMENTS LIMITED FREEPOST LONDON EC4B 4AA
I am interested in Ref:
Name
Address
To Day
Evening

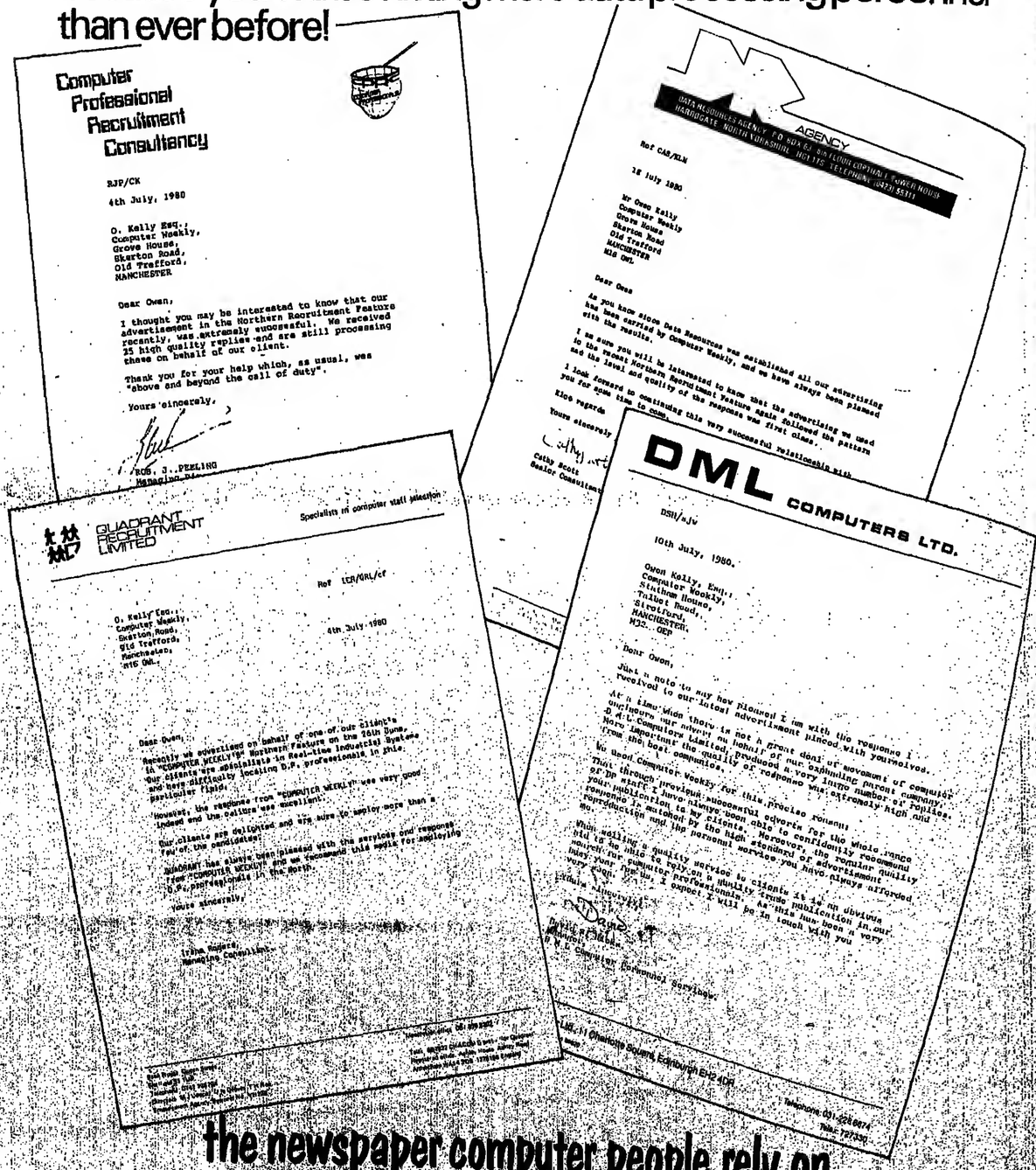
MYRIAD APPOINTMENTS LIMITED
30 Fleet Street London EC4Y 1AA Telephone: 01-353 0981 24 hours

TAKE THEIR WORD!!

A TESTIMONY TO THE RESPONSE

COMPUTER WEEKLY CAN BRING YOU

because you will be hitting more data processing personnel than ever before!



the newspaper computer people rely on

Senior Sales Engineer

CAD/CAM

c.£9,000

BASE SALARY
PLUS SUBSTANTIAL GUARANTEE
PLUS COMMISSION

Location~MIDLANDS

We have been retained by a privately owned British Company to recruit a successful Sales Engineer, to market a versatile range of Graphical *CAD/CAM* products to various sectors of industry.

This position comes as a result of expansion and the launch of an exciting new division, together with a product dedicated to the *CAD/CAM* market area. Features of the product are proven reliability, flexibility and innovations by way of continuous research and development, guaranteeing a high level of sophistication to the equipment now and in the future.

Ideally, you should be resident in the Midlands, currently selling *CAD/CAM* systems, and be able to demonstrate the enthusiasm and commitment necessary to achieve the career progression inherent in the small, flexible and dynamic Company environment. Also practical knowledge of engineering and manufacturing techniques, together with an understanding of the marketplace is of paramount importance.

Remuneration is by way of a base salary of c.£9,000 plus a substantial guarantee, resulting in an above average first year earning package. A Company car and full expenses will also be provided.

For an immediate confidential interview, where you will be supplied with full Company information, contact:

CHRIS FRY ON 021-236 3781 (24 hour answering service)
OR 021-742 1992 (evenings and weekends)

Candidates are invited to submit a curriculum vitae where confidentiality is guaranteed.

Specialist Computer Recruitment Ltd

London 01-935 0671 3 Mendeville Place, Wigmore Street, London W1M 5LB
Birmingham 021-238 3781 35-37 Great Charles Street, Queensway, Birmingham B3 3JY
Manchester 061-833 0427 Blackfriers House, The Parsonage, Manchester M3 2JA
Brussels 010 322-640 7151/71 Avenue Louise 327, Boîte 4, 1050 Bruxelles

2364

DOS/VS...West London

A major 3031 installation in West London requires a Senior Systems Programmer and an Operations Supervisor to strengthen the existing team. The machine is currently operating under DOS/VS but will be upgrading to DOS/VSE and VM in the near future. Database facilities are provided by DL/1 and the teleprocessing system runs under CICS.

Salaries are competitive, conditions of employment are excellent and the benefits package is most attractive.

Senior Systems Programmer
c£10,500

Reporting to the technical support manager, you would be responsible for the evaluation of all software, including operatings systems and commercial packages, and for the implementation of new systems software within the installation.

Previous experience must include Assembler, DOS/VS and CICS and some supervisory experience would be an advantage. Full training in new software techniques such as VSE, VM and VOLLIE will be provided.

- 27 Days Holiday
- Flexitime - 35 Hour Week
- Training in DOS/VSE VM
- Excellent Pension Scheme
- Relocation Package
- On-going Technical Training

Operations Supervisor
c£9,000

Responsible to the Operations Manager for the control and co-ordination of the operations, support and job control departments, consisting of approximately 20 staff.

An in depth knowledge of DOS/VS and CICS is required plus previous operations supervisory experience. Training in VSE and VM will be provided as necessary.

This is a key role requiring a high degree of management skills complemented by a strong technical operations background.

Please telephone (24 hour answer service) or write to apply. Quote Ref: CW141-P

CAPP ASSOCIATES
01-686 9693

Computer and Professional Personnel Consultants
AMP House, Dingwall Road, CROYDON CR9 3XA

contracts set fair..

dilog

LONDON COMMUTING AREA

Programmers	IBM OS COBOL	£320
Programmers	IBM Series 1 Ass. BRUSSELS	£600
Database	IBM Analysts/Administrators	£400
Programmers	IBM PL/1 Jackson	£320
Programmer	APL (Commercial Application)	£330
Programmers	IBM DOS/VS COBOL DL/1	£320
Programmer	IBM DOS/VS BAL	£320
Programmers	IBM OS CICS/VS BAL	£320
Programmers	BASIC (Minicomputer)	£300

Telephone Richard Morley on:-

(01) 638-0036

DILOG LIMITED Throgmorton House 15 Copthall Avenue London EC2M 5TP

professionals seeking professionals

Data Processing Manager ➡ One career step!

➡ Analyst/Programmer Croydon to £10,000

We can only seldom offer an opportunity such as this - in one career step to move from Analyst/Programmer to Data Processing Manager. However this is such a chance - with a manufacturing organisation, in the specialist field of electronic controls.

هكذا من الأصل

The experience required includes systems analysis, programming and preferably operations. You will either have a technical background with the ability to accept the responsibility of running your own show, or possibly already be a small installation manager. In the systems area both financial and production systems are to be implemented using ICL 2903/2904 hardware, in an on-line environment. Programming languages used are COBOL, which you should have and FILETAB/TABN, experience of which would be an advantage.

The department is small and the D.P.M. will be involved in analysis and programming, in addition to direction and day to day management and operation of the installation. Salary is to £10,000 and other benefits include 23 days holiday (25 days in your 3rd year), a pension and life assurance scheme and a subsidised canteen. There will be a salary review based upon performance after the first six months with the company, and thereafter salary will be reviewed annually at the 1st January.

Please telephone (24 hour answer service) or write. Quote Ref. CW144-J

CAPP ASSOCIATES 01-686 9693

Computer and Professional Personnel Consultants

AMP House, Dingwall Road, CROYDON CR9 2XA

Systems development in a London based International Banking environment require PROGRAMMERS with 2-3 years of comprehensive programming experience, preferably on Financial Applications.

REQUIREMENTS:

COBOL —ESSENTIAL

BASIC PLUS or RSX11 —PREFERABLE

PROSPECTS:
Excellent with future opportunities for European travel and a clearly defined career development path. Also, immediate involvement with the latest technology.

SALARY:
£6,000-£10,000 (experience dependent)

BENEFITS:
MORTGAGE SUBSIDY AVAILABLE
FREE LIFE ASSURANCE
PAID OVERTIME
LOW INTEREST LOANS
FREE BUPA
FREE LUNCHES

Telephone BOB BOWER immediately to hear more about these excellent opportunities and to arrange a prompt interview.

Ref: CW/1408

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE,
HUTTON STREET, LONDON EC4Y 8HP.
TELEPHONE: 01-353 7141 (24 HOURS).

Hutton
SPECIALIST RECRUITMENT CONSULTANTS (2334)

STAR JOB SPOT

SUPER SALES STAFF WANTED

N. LONDON AREAS & HOME COUNTIES OE £16K + CAR
At last a unique opportunity to join one of the world's foremost, largest and successful computer manufacturers. They have only very recently announced the latest in their white-hot technology range of multi-processing systems selling in the £30K to £100K bracket. Really take off and make a career out of your 2 years' plus selling ability. Ring Michael for details.
CW33/1

RPGII VACANCIES

LONDON AND HOME COUNTIES £6500-£8500 + CAR
If European travel and a car interests you, then several of our current list of 11 unique vacancies for RPGII Programmers and Analyst Programmers should appeal to you. Locations are the City, East London, Slough, Colchester and Surbiton. Many of the firms have or will have the latest IBM 34 and 38 installations. One Junior Management job also available.
CW33/2

CONSULTANTS

CENTRAL LONDON £10000 to £16000
5 large, well-established consultancies wish to recruit systems people with all-round experience on the latest equipment and the right personality to deal with clients who require first-rate service. Technical Communications Consultants are also required where in-depth implementation experience of IBM or DEC latest ranges are essential. Excellent fringe benefits and prospects.
CW33/3

(2353)

Recruitment Consultants
UNIVERSAL COMPUTER ASSOCIATES LIMITED
01-995 3883 (01-958 6138 Evenings)
Data Express House, 3 Prospect Place, Heathfield Terrace, Chiswick W.4.

JBA

Sales Executive

London and Home Counties — Package c. £20,000 + Car
A new range of mini computers of exceptional quality and technical advancement is about to be launched throughout the UK by a hand picked team of professionals. As a member of this team you will be responsible for opening, developing and supporting a specific area which you will go on to manage once you have established the product.
A considerable amount of experience is expected including a sound commercial systems background with a minimum of 5 years in a mini sales organisation.
A first class opportunity to attain that management goal with a potential market leader.
Contact: Brian Postles

Database Consultants

London & Europe — £ Neg
One of the most highly respected Consultancy organisations in the UK is recruiting top database people to work on various projects throughout the UK and Europe.
A sound technical background is essential with emphasis on the analyst/design aspect.
Full data analysis experience with intricate knowledge of large IBM installations, would be a definite advantage.
At top salary levels, appointees will be expected to contribute to the company's growth within a fairly short space of time, so a consultancy background would be favoured.
Minimum salary of £11,000 + benefits (car etc) can be expected for around seven years experience in the d.p. industry.
Contact: Janet Chilvers

Project Leader

Central London — £11,000
This internationally known software house, has an immediate requirement for an experienced person, who has a solid commercial background incorporating all aspects of accounting, design of real-time systems and database. Good knowledge of Honeywell hardware is essential, with experience of at least one other commercial machine.
The appointee will be completely responsible for the project, and would be expected to have covered areas such as planning, scheduling, monitoring progress of systems and control of approximately 10 staff.
Excellent opportunities exist within the organisation, which will ensure good prospects and possible travel to Europe if desired.
Contact: Janet Chilvers

Technical Product Support — ICL/DEC

Thames Valley — c. £10,000 + benefits
Our clients are the originators and marketers of a world-renowned range of Database and T.P. software projects. They are currently looking for good all round D.P. technicians to work in their Technical Support Group. Detailed knowledge of ICL and/or DEC software is essential while adaptability and commercial awareness is also required.
Some European travel is involved, but without extended overnight stays.
These extremely attractive opportunities offer first-class career development in a highly professional and stimulating environment.
Contact: Margaret Stevens

Technical Designers

Middx. and Bedfordshire — £8,500 – £11,000
A small, well established systems house has interesting and challenging opportunities for technically competent individuals. The company has an excellent reputation, of which they are justifiably proud as a consultancy specialising in mini/micro based developments in a number of areas including: Communications, Graphics, Simulation and Process Control. Ideal candidates will be graduates and be well versed in the architecture, capability and use of PDP 11, Data General, NOVA, GEC 4000, INTEL or ZILOG processors. Preferred languages are Assembler, Fortran and Coral.
A superb opportunity to join a 'blue-chip' international company, who can offer variety, quality of experience and tremendous career prospects.
Contact: Margaret Stevens

Scientific Programmer

Surrey — to £9,000
Our client, a major supplier of various equipments to military establishments, wishes to recruit a scientific programmer to head the computer section of a simulation development project.
The successful candidate will be responsible for setting-up DP functions, including hardware and system software, design of computerised models, documentation and leading the initial team. Ideal experience would include at least 2 years FORTRAN with some exposure to ASSEMBLER, as well as good design knowledge of scientific applications.
An excellent salary is supplemented by attractive fringe benefits. **Contact: Brian Postles**

Senior Analyst/Programmers

Dorset — £8,000 + Relocation
This well established Publishing House is planning to upgrade their System 3 to a System 38, and need two experienced people to lead project teams, whose function will be to design and implement new on-line commercial systems and to support existing systems during the hardware conversion.
It is essential to have at least three years experience gained in a commercial d.p. environment, which should include a sound knowledge of RPG II and design and implementation of a major system. As this organisation are committed to long term development plans career prospects are very favourable.
Contact: Isobel Bruce

Mini Support Programmers

London — £7,500
This internationally known mini manufacturer is marketing one of the most advanced computer systems in use today, and need experienced people to join their professional team developing various commercial applications covering banking, word processing and library circulation systems.
A minimum of 2 years on-line programming experience preferably gained in a mini environment would be ideal, but consideration will be given to high calibre candidates with a sound on-line programming background.
Training facilities and career prospects are excellent as this organisation firmly support promotion from within.
Contact: Isobel Bruce

JAMES BAKER ASSOCIATES,
International Personnel Consultants,
32 Savile Row, London W1.
Tel: 01-439 9311.
(2348)

THORBAR

(RECRUITMENT AND CONSULTANCY SERVICES) LIMITED

Greenock House 19 Cuckfield Road Hurstpierpoint Sussex BN6 9RF

Telephone: Hurstpierpoint (0273) 833848

SPECIALISTS IN DP AND EXECUTIVE RECRUITMENT

ARMCO FINANCIAL SERVICES EUROPE LIMITED

BRIGHTON

An expanding International Insurance Group is establishing its European EDP Centre in Sussex to develop comprehensive on-line —systems to support their Insurance and Financial Services Operations.

SYSTEMS PROGRAMMER
ANALYST/PROGRAMMERS
IBM 4300 SERIES HARDWARE — USING VM/CMS SOFTWARE

These are challenging ground-floor opportunities to join a dynamic group committed to major expansion in the U.K. and Europe and may involve some travel to Europe and the United States of America.

SALARY RANGE £7,500/£9,000 PER ANNUM

NON-CONTRIBUTORY PENSION SCHEME . . . LUNCHEON VOUCHERS
FREE LIFE ASSURANCE . . . EXCELLENT CAREER PROSPECTS
RELOCATION EXPENSES WHERE APPLICABLE

Telephone us (24-hour answering service) or write to us immediately so as to arrange an interview and in doing so take a positive step forward in furthering your career for the future.

(2379)

هكذا من الأصل

Beaufort

A member of the General Reinsurance Group

WANTED Car Drivers...

With clean licence, for Gloucester and the South East.

Not that our business is driving cars, but driving a company car, after an appropriate qualifying period, means that you have the experience and know how to operate in the leading Insurance Systems House in the UK.

You will have an ICL 2900/1900 background and insurance experience will help you on your way. You will currently be a senior programmer or analyst who has the determination to be successful.

We will provide the challenge, the car, a very progressive salary, luncheon and holiday vouchers.

Ring or write to Mrs Tolman.

Beaufort Computer Services Limited
Recruitment and Training Division
Kenslade House
Whitfield Street Gloucester GL1 1PG
Telephone 0452 418810 (24 HRS)

Computing Services Association

University College Hospital

Computer Operator

Chemical Pathology Department

To work on the daily operations of an On Line Laboratory Computer System which is undergoing further development.

The system is based on a Modular 1 computer with disc backing store and multiple terminals. The job offers considerable responsibility, and you will be expected to be able to work to time schedules and to adopt a disciplined and professional approach to your work.

You should preferably have experience of computer operating, in a real time environment.

Starting salary, dependent on experience, on scale £3902-£6935 (incl. of London Weighting) plus 10% shift allowance (increase pending).

Application forms and further information can be obtained from the Personnel Department, University College Hospital, Gower Street, WC1E 6AU. Tel: 01-387 9300, Ext. 391.

(Closing date: 10 days after appearance of advertisement.)

COMPUTER COURSES

From the Oxford Business School for British Computer Society Associateship Examination and for Management Briefing. This series of Courses combines the convenience of being able to study at home with the benefits of a personal tutor available by telephone plus optional seminars.

For detailed leaflet and application form write to:

The Director, Dept. 2A4, Oxford Business School, 88 Banbury Road, Oxford OX2 6PR, or telephone Oxford 53591 (24 hours).

EAST MIDLANDS

SOFTWARE SALES

£15,000 p.a. + CAR

PROGRAMMERS AND ANALYST PROGRAMMERS

to £7,500 p.a. and INDEX LINKED

Our clients, one of the most successful and professional organisations in the computer services sector, are expanding their operations in the East Midlands.

For SALES posts you should offer previous sales experience in the industry OR be able to demonstrate in depth systems knowledge combined with the motivation necessary for a successful sales career. With the backing of a major International Group, you will market a comprehensive range of proven software products. These are internationally recognised some having already achieved well in excess of $1,000,000 in sales.

As a PROGRAMMER or ANALYST/PROGRAMMER you will have the opportunity to develop very broad skills and rapidly advance your career. Working on the wide range of commercial applications you will be involved in new development on real-time mini-computer projects. Current work involves ICL, IBM Small Business Systems and Philips hardware. You should offer at least 18 months' commercial experience.

The salaries offered are highly competitive and INCREASE automatically through the year with inflation. The area offers attractive low-cost housing and where necessary, relocation assistance will be considered.

Male or female candidates should contact Patrick Convey quoting reference number: CW281.

CPC

COMPUTER PERSONNEL CONSULTANTS
18th Floor, The Rotunda
Birmingham B2 4PA
021-632 6848

COMPUTER USER LIAISON OFFICER

UNITED KINGDOM ATOMIC ENERGY AUTHORITY

The Northern Division of the UKAEA has a vacancy in the Central Computer Services Section at Risley for a Computer User Liaison Officer. The work involves assisting staff from the whole of Northern Division and BNFL with the ICL 2980 computer at Risley.

Remote batch and interactive terminals are used for a wide range of scientific, engineering, commercial and managerial applications. The successful applicant will help staff who have problems in the use of the computer, advise users about the facilities available, recommend improvements to the operational procedures and facilities and provide occasional training courses for new and existing users.

Applicants should have an Honours Degree in a scientific or engineering subject or Corporate Membership of a Senior Professional Institution. In addition, several years experience as a user of a large computer system or of providing and supporting a service on such a system is necessary. An understanding of System Control Languages and high level languages including FORTRAN and COBOL is required and experience on an ICL 2900 System using VME/B would be an advantage.

Appointment will be either as a Professional and Technology Officer Grade I or a Senior Scientific Officer and the salary will be in the range £6,780 to £10,915. Applications are invited from both men and women. The appointed Officer will be based at the UKAEA Northern Division Headquarters at Risley, Warrington, Cheshire, although visits to other UKAEA and BNFL sites will be necessary.

For an application form please write — no stamp needed — to Staff Office, United Kingdom Atomic Energy Authority, Recruitment Section, Northern Division, FREEPOST Risley, Warrington, WA3 6AT, quoting reference S 2274/CW

UKAEA
NORTHERN DIVISION

2332

IMS SPECIALIST

Holland £20,000 + p.a.

For a one to two year assignment providing support in all aspects of IMS DB/DC to an application development group. This group is responsible for a Division which has limited IMS experience, and so duties will include advice on design, setting up development standards and procedures, plus trouble-shooting on problems which arise. Candidates should have a solid IMS background, and experience in a DBA role could be helpful, plus the ability to communicate effectively with development staff and DB/DC support groups in the main Data Centre. As English is widely spoken there is no requirement to speak Dutch.

For further details, please telephone or write to Jim Shaw at our UK offices, or call during evenings/weekends on 0990 24548.

cds The European 370 Specialists

67-73 Park Street, Camberley, Surrey GU15 3PE. Tel. 0276 25845. Telex 858082.

(2380)

UNIVERSITY OF BRADFORD

LECTURESHIP IN COMPUTER SCIENCE

The Schools of Studies in Computing offer M.Sc., PG Diploma and Hon B.Tech. courses in Computer Science and B.Tech. Computing and Data Processing. Lecturers are also involved in research activities and in teaching computing to students throughout the University. Salary scale: £6052-£10484 p.a. Superannuable. Commencing salary within the range £6052-£8738.

Further particulars/application form (to be returned asap) obtainable from the Registrar, Post Ref C/L/15/CW, University of Bradford, West Yorkshire, BD7 1DP.

(2336)

SYSTEMS ANALYSTS and FIELD ENGINEERS

Did you see the PRIME ad on I.T.'s Exclusive list?

PHONE 01-580 2887

2390

ASSISTANT SHIFT LEADER

£7,254-£8,083 including 12% shift allowance

This post is based at the Authority's Computer Services Department in central Bradford working with an ICL 2970 computer using the VME/B operating system. The post will involve working weekly alternating shifts (days and evenings only — no nights), standing in for Shift Leaders and also providing cover at Divisional installations as required.

Applicants should have several years' experience of large-scale computer operations including some supervisory responsibility.

Application forms are available from the Regional Personnel Officer, Yorkshire Water Authority, West Riding House, 67 Albion Street, Leeds LS1 5AA (Tel: Leeds 448201, ext. 289), to whom they should be returned by 21 August 1980.

(2381)

Yorkshire Water

PROGRAMMERS

London IBM Cobol/PL1/Mark IV

Tel: Roger Barnes on 01-628 4200
48 Copthall Avenue, EC2R 7DA

SIDA

(2295)

ANALYST PROGRAMMERS

REAL-TIME SYSTEMS

JOHN BELL, an expanding Systems and Software house, require additional staff with 1 to 3 years' experience of design or programming for real-time systems. Of particular interest is experience in one or more of the following:

GEC4000 PDP11
CORAL 66 MASCOT
Micro Systems
Design of Industrial, Defence or Telecommunications Systems

Salaries are in the range of £7-£9K, or possibly higher for the ideal candidate.

Enquiries are also welcome from anyone believing they can make a significant contribution to our business. To investigate these career positions further, contact Mike Ford on Fleet (02514) 28014, or send details of previous experience to:

John Bell Technical Systems

Members of Computing Services Association

Recruitment LOGISTIX in Informatics

Communications & Telephony

E.E.C. Package c £20K

System X has been universally recognised as the system not only for the '80's but probably for the foreseeable future. Such is the respect that Continental Europeans hold for System X that many of the communications and telephony specialists who have developed the software are now in great demand . . . We are able to offer several attractive career positions in Mainland Europe. Our client, a leading Total Systems Supplier to European P.T.T.s, has an immediate requirement for **Communications Specialists** with current involvement in public telephony systems and digital networks. Of course particular hardware exposure is less relevant than the applications knowledge but familiarity with PDP11, VAX 11/780 or Intel 8085 will be a distinct advantage.

Ref. L/33/A

Systems & Business Analysts

City Area: Salary to £11.5K

Unlike most users, this major shipping company recognises the crucial importance of its D.P. Department to the efficiency of its commercial operations. "State of the art technology," substantial development work and above average salaries are, therefore, notable characteristics of the positions they are able to offer. **Systems Analysts** should demonstrate supervisory experience gained during the development of at least one medium to large computer system, preferably utilising CICS and IDMS. A further requirement exists for **Business Analysts** with a successful record in managing small project groups and who possess the self-confidence and ability to help formulate the Company's Systems Strategy stretching into the mid-1980's.

Ref. L/33/B

Mini & Micro Software

Holland: Salary to £16K

An internationally renowned Systems and Software House with a successful and expanding Dutch operation is seeking additional Consultants, Team Leaders, Analysts and Programmers. Applicants should offer in-depth knowledge of an Assembler language on any mini or micro computer. Of particular interest will be those who have specialist expertise in the field of Communications, Networks, Message Switching or Process Control. Successful candidates will work in small specialist project teams both in-house and on various client sites throughout Holland. Excellent relocation and accommodation allowances will be paid in addition to an above-average salary.

Ref. L/33/C

Financial Consultants

Berkshire + Benelux: Salary to £20K

Our client has its European Headquarters in Brussels and a Regional Office close to Heathrow. The Company's Financial Management Systems have been very well accepted in Europe and consequently additional personnel are required to act in both pre- and post-sales environments. Successful candidates should preferably be aged 27-35 years and offer Banking (Retail or Merchant), Stockbroking or Accounting experience with a large scale IBM user or an IBM compatible systems supplier. Analytical and design skills are essential for the Consultancy positions whilst two years' post-graduate programming experience is ideal for the Programming posts. All positions will involve a degree of national and international travel. In the long term there may be the opportunity to take up a permanent position in U.S.A. with the parent company.

Ref. L/33/D

Telecoms - Senior Designers

N.W. London: Salary to £11.5K

A renowned European Systems Supplier and Consultancy within close proximity to extensive motorway and rail facilities is seeking several Senior Designers with substantial experience of telecommunications, networks and multi-tasking techniques. Successful candidates will preferably be aged 25-30 years and have a minimum of five years' programming, systems development/implementation exposure in either a commercial or financial environment. These positions represent an outstanding opportunity for those keen to enhance their technical skills. There will be some travelling (although not extensive) to the Company's Continental operations.

Ref. L/33/E

Cobol Programmers

W. Home Counties: Salary to £9K + Benefits

Outstanding opportunities have arisen for COBOL Programmers in the Software Development Headquarters of one of the world's leading mini-computer manufacturers. Successful applicants will be aged 23-30 and have at least 2 years' on-line COBOL programming experience gained on any mini-computer. Preference will, however, be shown to those candidates with exposure to IBM System 3/32/34/38. As a member of a small project team you will be engaged in the development of transaction-oriented software. Rapid career progression in this expanding company is assured for applicants able to demonstrate leadership qualities.

Ref. L/33/F

Software Trainers

Hampshire Coast: Salary to £10K

A leading manufacturer of mini-computers for both Scientific and Technical applications seeks several Software Trainers and Instructors for its recently established Hampshire office. Work content will include the staff training of both existing and prospective customers in D.P. techniques and the Company's Software products. Education takes the form of product demonstrations, seminars, workshops and of course "on the job" tuition. The development of software courses in areas not so far covered by the Company will form an essential and integral part of the post. Our client prefers candidates who have previously programmed in either BASIC or Assembler. Previous lecturing or training experience is an obvious asset. Interviews can be arranged locally or in London.

Ref. L/33/G

(2361)

Logistix, 10 Grenville Place London SW7 4RW

01-373 3063 LOGISTIX Telex: 28800

HERTS

Mini or Micro experience Assembler Programmers and Analyst/Programmers (knowledge of Basic an advantage) for Manufacturer of Intelligent terminals and emulators. The company is small enough for you to make a significant contribution to its progress!

to £9K

COMMERCIAL SYSTEMS

COBOL Programming experience essential for these Programmer and Analyst positions offered by leading London Bureau. A considerable amount of the work is on development of new commercial systems. Profit share scheme operated and incentive bonus scheme.

to £10K

MUMPS

MUMPS Programmers with 2+ years experience in a real-time environment wanted for in-house development work by Systems House on an accounting package. Series I and DG hardware involved. Location is at our Client's London offices.

c £7.5K

TECHNICAL SUPPORT

Analysts or similar with general financial systems background and knowledge of database products required by Professional Services division of major TP and DB systems supplier based in Berkshire. Mobility essential, as most of your time will be spent visiting the Company's UK clients.

to £11K

WEST GERMANY

IBM Systems Programmers and Applications Programmers needed for defence project currently being undertaken by this highly reputed Systems and Software House based in Southern Germany. Knowledge of CICS, IMS, Adabas or similar advantageous, as is a familiarity with the German language. Generous relocation package offered, plus substantial benefits.

to £18K

Mini & Micro

S.W. Home Counties & Cheshire

Are you currently involved in Message Switching, Communications, Military Systems, Modelling or Simulation? If you can offer sound experience in any of those fields, plus a hardware background encompassing either PDP 11, Data General, Intel 8080, Zilog Z80 or M6800, with knowledge of Assembler and at least one high level language you should be ideally suited for a position with this leading Systems and Software House.

Based in the S/W Home Counties, our Client has several UK offices, so whether your choice of location is North or South we are sure they will be able to accommodate you. Superb career opportunities and promotion prospects are offered to Senior Analysts and Programmers, Project and Team Leaders and Systems Designers. Full benefits package plus attractive salary.

Salaries £7-11.5K

MICROS ANALYSTS

Systems Analysts with extensive experience of micros, combined with commercial application, required for design and development work on hardware and software at new Berkshire offices of leading supplier in the micro field. Electronic Engineering background preferred.

£9-14K

SALES

Technical background on minis preferably with knowledge of graphics and plotters, required for sales role in Northern England. Products are high quality graphics terminals — previous client contact advantageous, selling experience not essential.

c £7.5K basic

DOS UK & EEC

IBM Systems Programming experience in DOS, DOS/VS or DOS/VSE environment, required at senior and junior levels by large and prestigious Systems Software company with operations world-wide. Knowledge of specialised system software e.g. CICS highly desirable.

to £14K

HOLLAND

Analyst/Programmers, Analysts, and Consultants with 2+ years Mini Assembler or Micro experience gained in scientific or technical environment, required by International Systems Group based in Holland. Applications include Process Control, Networks and Message Switching and Simulation. Generous relocation assistance offered plus benefits package.

£12-17K

MINIS—MIDDX

Analyst/Programmers and Project Leaders sought by Mini Manufacturer for their software development section in Middlesex. Of especial interest is knowledge of Interactive Systems, Interfaces and Interpreters. Major application areas are banking and small business systems. Excellent career opportunities offered by this rapidly expanding organisation.

to £11.5K

MATRIX

10 Grenville Place
London SW7 4RW
01 373 3063

If the job you're seeking isn't featured call Matrix – if that job exists we'll go to great lengths on your behalf

MATRIX

SITA

SOCIETE INTERNATIONALE DE TELECOMMUNICATIONS AERONAUTIQUES

operating and developing a world wide data transmission and message switching network for exclusive use by Airlines is looking for a

SYSTEMS ENGINEER

(Reference EO)

to join a team charged with the definition and the development of its next generation network (Advanced Network)

This engineer will

- participate in the network development studies and preparation of systems specifications;
- participate in the definition and preparation of communications protocols;
- participate in meeting of organisations for standardisation.

Qualifications

- Degree in computer or communications science
- 2/3 years experience in real time computer systems and data communications.

This position is based at the head office in Paris. Working language is English; however, some knowledge of French is considered an advantage.

Please write giving full career details to:
SITA - 112, avenue Charles de Gaulle,
92522 NEUILLY SUR SEINE - FRANCE

2337

Senior Programmer

We require a Senior Programmer at our Head Office in Whetstone, to supervise four programmers, working on a variety of commercial systems in a project team environment.

Systems are run on an IBM 370/148 mainframe, and a project to select minicomputers for Group Subsidiaries is already underway.

Applicants, male or female, should be aged between 25 and 35 and ideally have experience of small machines as well as IBM COBOL under DOS VS or DOSVS, or total base under DOS.

We can offer an attractive salary reflecting the seniority of the position, flexible hours, subsidised staff restaurant and 22 days' holiday per annum.

Please apply to: Personnel Officer, Berec Group Ltd., Berec House, 1255 High Road, Whetstone, London, N20 OEJ. Telephone: 01-446 1313.

BEREC

(2348)

QUEEN MARY COLLEGE
University of London
COMPUTER SCIENCE & STATISTICS DEPARTMENT

RESEARCH ASSISTANTS

required for 2 SRC-supported projects directed by Dr. A. H. Bond:

a) to investigate model matching techniques in computer vision, using the ICL Distributed Array Processor; appointment for 22 months;

b) to develop a sensory system for the GMC computer controlled robot; successful candidate will be expected to design and build hardware; appointment for 6-12 months.

Initial salary for both posts (under review) £5465 p.a. Please apply by letter, giving age, qualifications, experience and names of two referees, to The Secretary (CW), Queen Mary College, Mile End Road, London E1 4NS.

(2346)

UMIST
DEPARTMENT OF COMPUTATION

PROGRAMMER

Ref: COM/161/BC Applications are invited for the above post from applicants with experience of computer programming and a degree or equivalent qualification. The post will involve providing programming support for the Department's BSc and MSc courses. Opportunities will exist for the use of a wide variety of computers and languages.

Salary will be on the scale £4402–£7410 per annum (under review).

Requests for application forms and further particulars, quoting the above reference, should be addressed to the Registrar, Room B4, UMIST, PO Box 88, Manchester M60 1QD. The closing date is the 29 August 1980.

ASSISTANT TREASURER (REVENUE)

(Up to £9,573 p.a.)

Third tier post having responsibility for the Rating, General Income and Allowances Sections of the TREASURER'S DEPARTMENT. Applicants must possess an appropriate qualification.

Salary within Grade P.O. 1G (£8,574–£9,573) (National Salary Award pending) — Post No. 44.

Essential User Car Allowance/Assisted Car Purchase Facilities.

COMPUTER LIAISON OFFICER

(Up to £9,090 p.a.)

A newly created post with responsibility for advising on the Council's overall computer developments in liaison with other Departments of the Council and with the Computer/Data Processing Section based within the TREASURER'S DEPARTMENT. The Council operate their own minicomputer and at present also utilise the services of a mainframe computer based with another local authority. Ideally, applicants should be qualified Accountants with computer application experience.

Salary within Grade P.O. 1E (£8,097–£9,090) (National Salary Award pending) — Post No. 45

Generous relocation package/temporary housing for both posts in appropriate cases.

Closing date 29th August 1980 quoting appropriate Post No. Offices closed Bank Holiday 25th & 26th August, 1980

(2318)

Canvassing will disqualify.
Application form and job description from the Personnel Office, Treasurer's Department, Civic Offices, Riverside, Stafford ST16 3AQ.
Tel: Stafford 3181, Ext. 346.

STAFFORD BOROUGH COUNCIL

PROJECT LEADER — To £11,000

MIDDLESEX

A person with at least five years' experience as a Minicomputer System Analyst is required to lead a project team using a PDP 11 machine. Previous mini programming experience useful.

PROJECT LEADER — To £10,000

MIDDLESEX

A world-renowned manufacturing company is seeking someone with wide commercial applications experience to lead a team engaged on development work. IBM mainframe machine.

PROGRAMMER/ANALYST — £7,500

NEAR CROYDON

At least two years' Cobol programming and one year's analyst experience is required for this position in a small department using an IBM 370 machine.

BUSINESS SYSTEMS MANAGER — c. £8,000 + Car

ASHFORD

A medium-sized installation requires someone with at least two years' RPG II experience and about a year's analysis experience capable of supervising staff for this position with a manufacturing company.

If you are interested in any of the above positions, please phone for an application form or write, giving full details.

AMES PERSONNEL

Employment Agency Suite 14, Dryden Chambers, 119 Oxford Street, London W1R 1PA. Tel: 01 434 1106

Data Processing Manager

Newspapers — South Coast

An exciting career with a successful provincial daily newspaper. Involvement in all aspects of the business and work of a strong technical interest are three features of this post which will have wide appeal. Portsmouth and Sunderland Newspapers is a profitable group which operates one of the most advanced computer systems in the industry. It has recently installed two DEC PDP 11/70 computers which now, with some 50 terminals, service both commercial and production requirements. A DP Manager is sought who will take charge of the Portsmouth operation and allow the present Manager to undertake wider responsibilities. There will be a strong emphasis on the further development of systems and on ensuring user satisfaction. Candidates should have management experience of a large time sharing system; a background in newspapers would be helpful but is not essential. Salary will be negotiable around £10,000 with good fringe benefits. Location: Portsmouth.

Ref: MV51/7422/CW

Initial interviews are conducted by PA Consultants. No details are divulged to clients without prior permission. Please send brief career details or write for an application form, quoting the reference number on both your letter and envelope, and advise us if you have recently made any other applications to PA Personnel Services. Men and women may apply.

PA Personnel Services

Hyde Park House, 60a Knightsbridge, London SW1X 7LE · Tel: 01-235 6060 · Telex 27874

PA

A member of PA International

Feeling Blue?

Outstanding modern facilities house the U.K. head office of our international blue chip organisation. We've been blue for years and have enjoyed and prospered with every minute, give or take a few. We established our data processing facilities fifteen years ago and have a continuous development programme to cater for our many locations in the U.K.

We have recently relocated our D.P. department to new facilities, with new equipment, and have commenced an ambitious redevelopment programme. We now require additional experienced analysts who wish to be involved in all aspects in the development and production of systems.

ANALYSTS
West of London
to £9,500

We envisage that successful candidates will offer a good systems design background, possibly with a knowledge of programming, who will expect to be rewarded for their initiative and innovation shown in the development of systems. We believe that the people we are seeking will have more than 18 months' experience in a commercial systems environment.

Our policy is to train our own management and there are excellent opportunities for advancement for those prepared to work effectively.

Should you feel brighter, yet want to remain blue, please telephone, write or clip the coupon and return to Capp Associates, quoting reference no. CW145F. They will be pleased to tell you more about us and the positions.

Feeling Brighter?

CAPP ASSOCIATES
01-686 9693

Please telephone (24 hour answer service), write or return coupon.

Computer and Professional Personnel Consultants

AMP House, Dingwall Road, CROYDON CR0 9XA

Ref: CW145-F - ANALYSTS

Name:
Address:
Phone Nos:

2339

PROGRAMMING TEAM LEADERS

WEST MIDLANDS — £7,500+CAR

Our client, a minicomputer turnkey systems house, wish to expand their team of professional staff.

They seek experienced and mature senior programmers, with the ability to lead and manage a team of staff, and to take responsibility for the success and profitability of their projects.

Ideally you should be able to demonstrate a background in minicomputers, and have experience of DEC PDP operating systems and languages, however other relevant experience will be considered. You will be seeking to move to an organisation where your programming skills will be rewarded.

Projects are carried out on a turnkey basis, and you would be totally involved from initial estimating up to installation and handover to your client.

Future prospects within this fast growing area of the market are exciting, and our client is ideally placed to take advantage of the opportunities.

General conditions of employment include six monthly salary reviews, service awards, pension, sickness and BUPA schemes, five weeks' holiday and provision of a company car.

To discuss these opportunities, please contact Mike Hesslen, ref. CW282.

CPC

COMPUTER PERSONNEL CONSULTANTS
18th Floor, The Rotunda
Birmingham B2 4PA
021-632 6848

(2370)

UNIVERSITY COLLEGE LONDON
COMPUTER CENTRE

A Microprocessor Support Laboratory is being set up in the Centre, to give hardware and software assistance for the generation and testing of microprocessor applications programs.

There is now a vacancy for a

MICROELECTRONICS SUPPORT OFFICER

with an interest in programming.

Depending on qualifications and experience, the appointment would be either on the 'Other Related Staff' 1B scale, between £4,402 and £6,399 plus London Allowance of £740 or on the Technician Scale, up to £4,974 (Grade 6) with an additional London Allowance of £780. The post is suitable for a recent graduate or for someone with technical qualifications in electronics. (Salaries currently under review). Applications (1 copy) should be made as soon as possible to Professor P. A. Samet, Computer Centre, University College London, Gower St., London WC1E 6BT giving details of qualifications and experience, with names of two referees.

2347

UNIVERSITY OF EAST ANGLIA
Norwich
Applications are invited for two newly established posts of

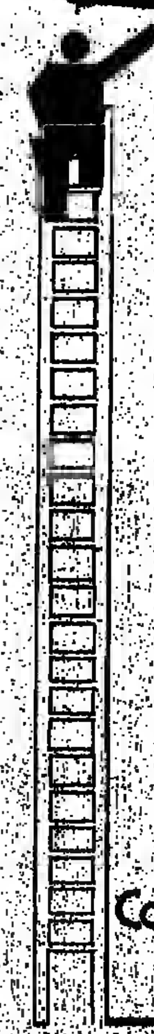
COMPUTING ASSISTANT

in the School of Computing Studies and Accountancy. For one post candidates should have interest in the development of computer-based financial systems. Preference will be given to candidates with qualifications at degree level but applications from candidates with other qualifications and suitable programming experience will be considered. The appointments will commence on 1st October 1980 or as soon as possible thereafter. The salary will be on the scale for academic related staff grade 1B, £4402 to £7410 (under review) plus USS benefits.

Applications (one copy only) together with the names and addresses of three persons to whom reference may be made, should be lodged with the Establishment Officer, University of East Anglia, Norwich NR4 7TJ (telephone 0603 56161 ext. 2128) from whom further particulars may be obtained, as soon as possible before Friday 29th August 1980. No forms of application are issued. In naming the referees you are particularly reminded to give only the names of those who can immediately be approached.

(2376)

contracts in the south



PL1 IMS TSO
PDP RSTSE BASIC + 2.
BUSINESS ANALYST FINANCIAL AND ACCOUNTING BACKGROUND.
PDP RSX11 RTL 11 or any ASSEMBLER languages in a real-time environment.
IBM MARK IV.

LONG CONTRACTS
TOP RATES
FLEXIBLE START DATES

RING ANGELA ARNONE on 240 2441 or fill in the coupon

Computer People South
01-240 2441

Mail (no stamp) to FREEPOST, Computer People South, WC2 House, LONDON WC2N 4BR.
Name
Address
Tel (Day)
(Eve/Wknd)

Analyst Programmers & Programmers Birmingham

to £8,750 + BONUS + RELOCATION

COBOL, 3031+AP, 3033, 8100, VSP-C, IMS DB/DC, CICS VS

My Clisnt, a leader in the food proceseing industry, has aeked me to find experienced men and women with a high level of education for several extremely rewarding positione. These involve the use of some of the moet sophisticated development techniques and extensive on-line and interactive systems on new IBM minis and mainframes.

A massive commitment has been made to—

a) provide a factory distributed processing system with 240 shop floor terminals, in which 18 new systems are to be developsd and implemented within the next three years.
and to

b) expand the Managsment Ssrvices computing department which acts as a bureau and centrs of expertise for my Clients' subsidiary companies throughout the UK and overseae.

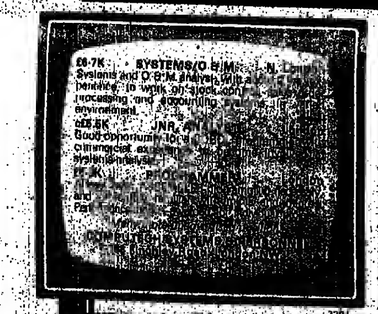
Successful applicante will therefore be given ths opportunity to develop thsir skills and to widsn thsir sxperiencs with the greatset variety of syeteme and applications in ths very forefront of new computing tschnology.

My Client also offers a structured career in which formal in-house and occasional external training will be given, togethsr with career progression according to merit.

Your experience nsed not hsve bsen gained in an IBM environment. More important is that you should have good solid expsrience, have a high regard for professionalism and be able to demonstrate rsal potential for attaining more senior positions.

Please write to me, Digby A. Dyke at the address below, or telephone me at my office on 021-643 8501
Please quote reference No: DD/J315/C14/08.

Computer People Midlands
Alpha Tower
Birmingham B1 1TT
021-643 8501
Recruiting for Clients VLI group



COMPUTECH 01-794 0202

Immediate Contract Vacancies
ANALYSTS & PROGRAMMERS
Analysts/Programmers
Burroughs, Cobol (and Jackson)
ICL
MALE OR FEMALE
Excellent Rates, Long and Secure Portfolio
Telephone PETER NIGHTINGALE
Fleet 21768
White & Nunn (PERSONNEL SERVICES) Ltd

ANALYST/PROGRAMMERS
London IBM Cobol/PL1/Mark IV
Tel: Roger Barnes on 01-828 4300
48B Copthall Avenue, EC2R 7DA
SDA

DISTRIBUTED COMMUNICATION SOFTWARE

CENTRAL LONDON — CIRCA £10,000 PA

We are seeking a designer/programmer able to underteke responsibility for the design, implementation and documentation of advenced communications techniques in a distributed network.

Recommend and preferably you should be able to offer a number of years of assembler programming experience and ideally should also have written communications and device level I/O software.

Knowledge of bit oriented protocols would be an advantage.

Telephone or write to us how to discuss this opportunity and to arrange an early interview.

THORBAR (RECRUITMENT & CONSULTANCY SERVICES) LTD.
GREENOCK HOUSE
16 CUCKFIELD ROAD
HURSTPIERPOINT
WEST SUSSEX
Telephone Number: Hurstpierpoint 833845

FIELD SERVICE ENGINEERS

C. £6.5K + CAR

Infotron Systems Limited, a major manufacturer of Data Communications equipment, requires Field Service Engineers for the Greater London Area. Applicants, who may be of either sex, must have experience in Data Communications and/or computer engineering. Qualification to H.N.C. level desirable, but not essential. Full product training will be given.

Write or phone for application form to:
Steve Kay, Field Service Manager, Infotron Systems Limited, Systems House, Poundbury Road, Dorchester, Dorset, DT1 2PS. 0305 66016.

Infotron Systems

UNIVERSITY OF LONDON COMPUTER CENTRE

SYSTEMS PROGRAMMERS

The University of London Computer Centre provides a national Computer Service to Universities throughout Southern England. The Centre is equipped with Control Data 7600, 6600, 6400 and Cyber 72 computers and supports a large communications network of remote job and interactive terminals. A development programme is under way which will include replacement of the existing mainframes in the early 1980s.

The Centre has vacancies for experienced systems programmers to work on the development of services for the 1980s. Initial duties will be related to procurement of new equipment and support for relevant operating systems.

Candidates are expected to have several years of operating systems experience on modern, high-performance computing systems. Academic qualifications to degree level will be required. Experience in project leadership would be an advantage.

Remuneration will be according to age and experience within the range £5,112 to £11,224 (under review) including London Weighting.

Further details and application forms are available from the Assistant Secretary (UL/CC), 20 Guilford Street, London WC1N 1DZ. Telephone 405 8400.

With our Contracts, you won't have to read between the lines.

Some contract assignments turn out to be a great deal different than the job that was glowingly described to you by your consultant. Small details keep changing and in the end the job doesn't even resemble the one that you originally chose.

Knight Programming Support Limited guarantee that as one of our contract staff you will never be assigned to a job which doesn't perfectly match your skills and experience.

Listed below are just some of our current vacancies but if you can't see one for you, contact us anyway, we will send you our free brochure outlining our services. We are sure we can be of help.

PROGRAMMER £280

ICL 7900 operating under COS New Assembler Language/CORAL. Must have communications experience, involves documentation. Immediate start, 6 months' contract. **North West.**

SYSTEMS DESIGNERS £450

ICL 2970 experience. VMEB COBOL. Large scale project. Long term contract, starting soon. **North West.**

TUTOR £300

IBM 360/70 Assembler plus some COBOL. Outgoing personality to assist students with coding and run course. Immediate start, initial 2-month contract. **North West.**

ANALYST/ PROGRAMMER £260

IBM 3032/VSPC. Implement commercial systems, on-line experience essential. Immediate start. Initial 6-month contract. **Scotland.**

PROGRAMMERS £300

IBM/PL1, IMS, DB, DC plus ADF experience required. Real-time environment, working on varied financial applications. Immediate start, initial 6-month contract. **Midlands location.**

PROGRAMMERS £270

UNIVAC 1100 experience. 4 years plus COBOL, System Support and Suite Modification. October start, 3 months' contract. **North West location.**

PROGRAMMER £280

PDP II running RSX II operating system using RMS-II and Detatrieve. Good FORTRAN essential. Developing system for plant information. Start September, 6 months' contract. **North West.**

ANALYST PROGRAMMER £300

DEC 10/FORTRAN, simulation and statistical modelling experience essential. Operational research background and interactive experience ideal. Immediate start, one year plus contract. **North West.**

PROGRAMMER £300

Data General. Good FORTRAN and Data General Assembler experience essential. Immediate start, 3 months' initial contract. **Midlands.**

061-833 9341 (Manchester)
021-643 8867/8 (Birmingham)

London
Manchester
Birmingham
France
Holland
U.S.A.

Knights No 1
INTERNATIONAL COMPUTER CONSULTANTS

Computing Services Association

Knight Programming Support Limited,
Adamson House, Shambles Square, Manchester M3 1RE.
Kensington House, Suffolk Street, Queensway, Birmingham, B1.

Data Processing Manager ➡ One career step! ➡ Analyst/Programmer

Croydon to £10,000

We can only seldom offer an opportunity such as this - in one career step to move from Analyst/Programmer to Data Processing Manager. However this is such a chance - with a manufacturing organisation, in the specialist field of electronic controls.

The experience required includes systems analysis, programming and preferably operations. You will either have a technical background with the ability to accept the responsibility of running your own show, or possibly already be a small installation manager. In the systems area both financial and production systems are to be implemented, using ICL 2903/2904 hardware, in an on-line environment. Programming languages used are COBOL, which you should have and FILETAB/TABN, experience of which would be an advantage.

The department is small and the D.P.M. will be involved in analysis and programming, in addition to direction and day to day management and operation of the installation. Salary is to £10,000 and other benefits include 23 days holiday (25 days in your 3rd year), a pension and life assurance scheme and a subsidised canteen. There will be a salary review based upon performance after the first six months with the company, and thereafter salary will be reviewed annually at the 1st January.

Please telephone (24 hour answer service) or write. Quote Ref: CW144-J

CAPP ASSOCIATES
01-666 9693

Computer and Professional Personnel Consultants

AMP House, Dingwall Road, CROYDON CR9 3XA

THORBAR

(RECRUITMENT AND CONSULTANCY SERVICES) LIMITED

Greenock House 19 Cuckfield Road Hurstpierpoint Sussex BN6 9RF

Telephone: Hurstpierpoint (0273) 833848

Ref. No. CW/43/80

SURREY/HANTS BORDER
(GENEROUS RELOCATION)

SYSTEMS & PROGRAMMING MANAGER
c £10K + BENEFITS

- 3/5 YRS. D.P. EXPERIENCE
- COBOL BACKGROUND ESSENTIAL
- ICL COMMS. AN ASSET

SYSTEMS ANALYST
to £8.5K + BENEFITS

- 2/3 YRS. EXPERIENCE
- SOUND IMPLEMENTATION RECORD
- COBOL BACKGROUND PREFERRED

Our client is part of a large and diversified group located in an attractive part of Surrey only 30 miles from Central London. They operate a powerful medium range ICL 2900 running under Dir/2, which provides a service to companies within the Group.
The D.P. Unit, whilst compact, is staffed by a group of dedicated and highly competent professionals and has an enviable record of implementing systems to budget and timescale.
The vacancies represent career opportunities to candidates wishing to join a department at the start of an important development phase.
For further details contact JACK COLLINGS on 0273 833848, 9 a.m.-6 p.m. or any evening/weekend after 7 p.m. on 0273 400880.
Local interviews can usually be arranged.

(2392)

MACRO 4 LTD

Suppliers of EPAT, SPACEMANAGER, LOGOUT, BOOST, DUMPMASTER, SYSTEM/ACCOUNTING, POWER/PLUS and SPEED, specialists in DOS systems software, wish to recruit two additional professionals to work at their office in Wallington, Surrey. Installed hardware is a 4331 running VM, DOS/VS and DOS/VSE. ICCF under CICS is used for online development.

DEVELOPMENT PROGRAMMER
c. £10-£11K

to work on new/existing products. Thorough knowledge of Assembler is required and familiarity with DOS/VS internal logic and/or CICS/DL1 would be advantageous.

SYSTEMS ENGINEER
c. £9-£10K + CAR

to provide technical and sales support for our products. A sound DOS/VS background is required.

'Phone Phil Heseltine or Terry Kelly on 01-647 0911 or write to Macro 4 Ltd., 52/54 Stafford Road, Wallington, Surrey SM6 9AY.

PLYMOUTH POLYTECHNIC
Computer Centre

SYSTEMS AND OPERATIONS MANAGER
Salary: £7722-£8574 (under review)

Applications are invited for the above post which has been created following restructure and reorganisation in the Computer Centre and the acquisition of a PRIME dual 550 system. The successful candidate will be responsible for the work of a small team of systems programmers and also responsible for the overall supervision of Operations including data preparation. Proven experience in systems work is required together with some experience of operations. A working knowledge of telecommunications in support of computing services in principle and practice would be a considerable advantage.

PROGRAMMER
Salary range: £4551-£7077 (under review)

Applications are invited for a post as programmer within the given salary range. The Computer Centre now provides a considerable range of service to students, staff and administration based on a PRIME dual 550 system and the programmer would be required to write programs associated with any of the work of the Centre. Previous experience is desirable and an interest in graphics applications would be a further advantage.

Application forms for the above posts to be returned by **Friday, August 29, 1980**, can be obtained with further particulars from the **Personnel Officer, Plymouth Polytechnic, Drake Circus, Plymouth, PL4 8AA.**

(2371)

★HERTS.★

Engineers, all grades; take your pick.

10K people in places 07073 34888

(2302)

Senior Programmers
to £8.5K + profit share

Programmers
to £7.5K + profit share

CITY • COBOL

Dun & Bradstreet is an international group specializing in information about business – credit reports, directories, mailing lists and market analyses. Other services include commercial collection and specialist information on taxation.

During the next five years, all of D & B's services will be computerised, building up a comprehensive database on U.K. businesses. A full accounting and management information system will also be implemented for the U.K. group.

The present Management Services Division, set up in 1979, is expanding to meet these requirements. The computer, soon to be upgraded, is an IBM 370/145 operating under DOS/VSE. Programming is mainly COBOL. A database management system will be installed by December 1980, and the first on-line applications will be implemented in 1981.

Programmers should have a minimum of 18 months' COBOL experience. Senior programmers should have three to five years' experience. A knowledge of Assembler would be an advantage for the senior posts. As the division expands, there will be opportunities to move into analysis or systems programming.

Benefits include L.V.'s, relocation assistance where appropriate and season ticket loans. The division has a substantial training budget.

Contact Ian Fyfe on 01-247 4377,
Dun & Bradstreet, 6-8 Bonhill Street, London E.C.2.

Dun & Bradstreet
World's No. 1 Business Information Network

(2346)

JBA

MIDLANDS AND NORTH

Systems Analysts

North West — **to £8,000 + Benefits**

Opportunities exist for experienced SYSTEMS people within one of the most advanced installations within the region. The company is highly respected and provides excellent scope for career progression and first class training facilities.
Applicants should have a minimum of 3 years commercial systems experience preferably with a period in a large main frame environment. Though not essential, familiarity with on-line systems would be an advantage. A secure organisation, good salary package and, where appropriate, generous relocation expenses.
Contact: Bev Stevens

Service Engineer – Micro's

Glasgow, Manchester, Birmingham, Chepstow — **c. £7,500 + car**

A rapidly expanding company operating a commissioning and maintenance service to a wide variety of micro users throughout the UK is currently seeking to increase the level of field support and requires experienced SERVICE ENGINEERS.
Applicants should have computer service engineering background. Previous experience of micros is NOT essential as training will be given as appropriate.
Contact: Mike Gatehall

Analyst/Programmer

West Midlands — **£7,500**

Our client is an acknowledged leader in its field and produces a wide range of high and low technology products. The Systems Development team now has a vacancy for an Analyst/Programmer to assist in the development of a range of systems involving on-line, real time and database techniques.
Applicants, with at least 2 years computing experience should be proficient with COBOL. Familiarity with a Univac 1100 environment – notably TIP and DMS1100 would be advantageous.
Contact: Bev Stevens

Birmingham

Our client is one of the most respected and notable companies within the area. The organisation uses IBM main frame equipment, mini-computers and is now embarking on a new distributed processing project. Vacancies exist at various levels but the principal opportunities are:

Project Leader — up to £8,700

Applicants aged at least 27 should have a good education combined with at least 6 years computing experience. The ability to lead a team is essential and a technical, rather than a systems bias will be particularly advantageous.

Applications Programmers — c. £7,000 – £9,000

Vacancies exist at different grades according to experience. Applicants should have a good education and a minimum of 2 years COBOL programming experience.

Systems Programmer — £7,500 – £9,000

Applicants should have at least 3 years programming experience combined with practical knowledge of IBM systems software MVS and JES 2. Some experience with IBM 8100 systems is particularly relevant but not essential as training will be given where necessary.
Contact: Bev Stevens

JAMES BAKER ASSOCIATES, International Personnel Consultants,
Gateway House, 50 High Street, Birmingham B4 7SY. Tel: 021-643 7865.

(2349)

Sales Executives

ON QUOTA EARNINGS £20,000

+2 litre car

LOCATIONS:
London
The South West
Manchester
The Midlands

We have been retained by a world renowned manufacturer of computer systems, to recruit highly successful Sales Executives, as part of an on-going expansion programme.

Marketing a sophisticated range of products which are accepted and highly regarded by its established and enormous client base. Product features include reliability, flexibility and a highly competitive price list.

Ideally, you will be currently employed by a manufacturer, involved in selling computer systems or products to a medium or large account environment. Also possess a successful track record to-date, and reside in one of the geographical locations mentioned.

Remuneration is by way of a base salary negotiable guarantee and an excellent commission structure designed to give an on-quota package of £20,000. A 2 litre Company car, full expenses and usual benefits are also provided.

For an immediate confidential interview, where you will be supplied with full Company information, contact:

CHRIS FRY ON 021-236 3781 (24 hour answering service)
OR 021-742 1992 (evenings and weekends)

Candidates are invited to submit curriculum vitae if preferred, where confidentiality is guaranteed.

SCR

London 01-935 0671 3 Mandeville Place, Wigmore Street, London W1M 5LB
Birmingham 021-236 3781 35-37 Great Charles Street, Queensway, Birmingham B3 3JY
Manchester 061-833 0427 Blackfriars House, The Parsonage, Manchester M3 2JA
Brussels 010 322-640 7151/71 Avenue Louise 327, Boite 4, 1050 Bruxelles

Specialist Computer Recruitment Ltd

2365

Join us in Switzerland...

"£15,000-£25,000p.a. (U.K. equivalent) package"

Expansion in Europe constantly creates new opportunities for Computer professionals to display their individual and team abilities.

At CSC, the world's largest software systems company, we provide a unique spread of high level consultancy and technical services in many fields of computer technology; for example—communications, systems technology and applications software.

With new contracts and exciting prospects, CSC will shortly be establishing a Swiss office and will need staff with good and proven computing skills, who can quickly contribute to the successful operation of this new venture, providing further strength to an established management team.

We are primarily recruiting for **SENIOR SYSTEMS DESIGN/DEVELOPMENT STAFF**, and also have requirements for **TEAM LEADER DESIGNERS**.

Applicants should have specific software test, quality assurance or project management/control experience.

Appointments will be made on a permanent overseas status basis and applications are invited from those fluent in German, with a relevant degree, and at least three years appropriate software experience, preferably in real-time telephony/telecommunications applications.

Salaries, associated benefits and prospects for those interested in living in the beautiful country of Switzerland on single or married status are competitive. Applications should be addressed to Peter Murley, CSC UK Computer Sciences Company Limited, 36 Savile Row, London W1 or telephone (01) 439 4511.

...and leave the rest behind.

2367

Computer Professional Recruitment Consultancy

NOTHING SUCCEEDS LIKE SUCCESS

Our client is already the largest organisation of its kind in Europe. Internationally recognised products coupled with dynamic managemeht have now created a need for further controlled expansion.

They Need

8 SENIOR HARDWARE SALESMEN

to join a successful team in:

BRISTOL, BIRMINGHAM, NORTHAMPTON.

Good software, good support, experianced manegement, good earnings package with Realistic Quotas mean that earnings of

£17,000 p.a. (plus car, etc.)

are the norm. Most will earn more with NO upper limits

If you are successfully selling mini hardware to commercial and industrial first-time users at the moment with little job satisfaction and want a refreshing change, write or telephone quoting R14; for a local interview

Day: 0532 774040 Evening: Bretton 880
CPR Consultants Ltd., Suite 29, Concourse House II, 432 Dewsbury Rd, Leeds LS11 7DF. Head Office. Registered in England 1469420

PROBABLY THE MOST ADVANCED IBM INSTALLATION IN THE NORTH WEST OF ENGLAND

Has created new positions.

1. NETWORK AND SOFTWARE SUPPORT LEADER c£10,800

2. SOFTWARE SUPPORT PROGRAMMERS c£9,300

The Installation

Our Client has recently installed an IBM 4341 and will be taking delivery of a second 4341 in 1981. The machine will operate under VM and OS/VS1 and a remote computing network based on IBM 8100's under VTAM/NCP control is being developed.

Your Experience

Post (1). Five years in systems programming, software and technical support in a data communications and distributed processing environment.

Post (2). Three years in systems programming and technical support in a data communications and distributed processing environment

For both positions experience of SNA devices would be advantageous.

IBM EXPERIENCE IS DESIRABLE, BUT RELEVANT EXPERIENCE ON OTHER HARDWARE WOULD BE ACCEPTABLE.

FOR FURTHER DETAILS PHONE OR WRITE QUOTING REFERENCE IB/17

2368

Day: 061-228 1364 Evening: Glossop 64099
CPR Consultants Ltd, 12 Mosley Street, Manchester M2 3QA

Computer Auditing

2 POSTS—1 in London—£9,891-£10,668
1 in Reading—£8,883-£9,858

Currently the Authority operates twin IBM 370/148's which support a large teleprocessing network and an ICL 1904S providing a bureau service to the Authority. It is planned to develop a wide range of new applications for implementation on PRIME computers soon to be acquired.

E.D.P. audit specialists are needed to carry out the full range of computer audit activities, especially the review of new applications, the examination of the operation and security of the Authority's computer installation, and the development of audit software.

2 vacancies have arisen, one being based in London and the other in Reading, although both post-holders will be expected to visit other offices within the area of the Authority. Candidates should be experienced computer analysts/programmers or qualified accountants with a sound practical knowledge of computing gained either in the Public or Private Sector. The ability to articulate constructively and communicate effectively is considered essential.

Benefits include superannuation scheme, generous holidays, staff canteen, good social and sporting activities.

Applications giving full details of qualifications and experience, together with the names of two referees, should be submitted to the Director of Finance, Nugent House, Vastern Road, Reading, Berks, by the 22 August, 1980.

Telephone: 01-3468 3246

(2319)

Thames Water

SHIFT CONTROLLERS

Up to £11,332 p.a. (incl. Shift Allowance)

ALTRINCHAM, Cheshire

Due to the re-organisation and continuing expansion at our Computer Services Department based at Regional Headquarters in Altrincham, we are looking for experienced Management Trainees who will be responsible to the Operations Officer for the control and operation of all on line computer equipment and associated activities for one of three rotating shifts.

Outside normal working hours you will be responsible for the overall control of activities carried out within the computer centre.

Applicants must have considerable Managerial/Supervisory experience and ideally, a sound understanding of computer operations.

The work involves rotating shifts (Monday to Friday only) for which a 17½ shift allowance is paid.

Our employment package includes generous removal expenses (where appropriate), subsidised staff restaurant, good sports and social facilities, free personal insurance, at least 4½ weeks holiday a year, plus the opportunity of a secure future in a successful industry.

Interested? Then telephone for an application form and return it quoting reference 8A/732/CW not later than 29th August, 1980, to:

Personnel Officer (Headquarters)
NORTH WEST GAS
Wekham House
ALTRINCHAM, Cheshire WA15 8AB
Telephone: 061-941 3564

NORTH WEST GAS

(2339)

Immediate Contract Vacancies

ANALYSTS & PROGRAMMERS
Analysts/Programmers
Burroughs, Cobol (and Jackson)
ICL
MALE OR FEMALE
Excellent Rates, Long and Secure Positions
Telephone PETER NIGHTINGALE
Fleet 21768

White & Nunn (PERSONNEL SERVICES) Ltd

(2351)

SERVICE ENGINEER—UNIQUE

London/Home Counties — Start £7,500 + car

Unique Company — World's fastest growing computer manufacturer — 3-fold increase in the last 4 years — sales now 'taking off' in the U.K.

Unique Product — High cost/performance range — unparalleled MTBF — no direct competitors.

Unique Benefits — Ground floor opportunities in UK — high reliability — quality engineers — shares in the company — training in California — friendly, professional leadership — rapid expansion — opportunities in support, management, sales etc.

Unique Opportunity — Call our service engineer consultant today for details of — Company share scheme, BUPA, N/C pension, overtime, call-out 2 litre car plus £7,500 and more if you have minicomputer experience.

Ref: EK2194

(2373)

01-549 6441 (Day)
04365 3014 (after 7.30 p.m.)
AB EXECUTIVE (KINGSTON) LTD.

★HERTS.★

Field service engs. to be trained in company specs.

£K+ people in Places 07078 374966

(2369)

BOX Nos.

Box number replies should be addressed to:

Box No.
c/o Computer Weekly
Dorset House
Stamford Street
London SE1 9LU

Sales Executives

On-Target Earnings up to £15,000 + CAR

Territories
BIRMINGHAM
MARLOW
SOUTH WALES
LONDON
MAIDSTONE
EAST & WEST PENNINES
ABERDEEN

As part of a Multi-National Organisation, which has been established for well over a century, our Client has built up a reputation and impressive Client base throughout the world, spending considerable time and investment on new technology, software back-up and support services. They have been quick to realise that due to the current economic climate this is the time to increase their current efforts in penetrating a volatile market.

Their continuing expansion plans, now necessitate the need to recruit two types of Sales Executive to further enhance their penetration of the UK market place.

a) Ideally you will have between one and two years successful sales experience within the computer industry selling equipment with a unit value of between £8,000 and £15,000.

b) Three to four years experience in selling small business computers in a competitive environment whereby the unit cost will be c.£20,000 to £30,000.

You will now be looking for an International Company who can offer you large company benefits, excellent on-going training, a sophisticated product range and security at a time when this is paramount to any individual seeking alternative employment.

The successful Candidates will be part of a National sales team whereby our Client gives full support and training on territory, which is second to none, along with very realistic quotas which should earn the two types of individual £12,500 and £15,000 respectively for an on-target performance.

For further details please telephone, in the first instance,
PAUL PEARCE ON 021-236 3781 (24 hour answering service)
OR 021-308 4908 (evenings and weekends)
If you prefer, Curriculum Vitaes would also be welcome.

SCR
London 01-835 0671, 3 Mandeville Place, Wigmore Street, London W1M 5LB
Birmingham 021-236 3781 35-37 Great Charles Street, Queensway, Birmingham B3 3JY
Manchester 061-833 0427 Blackfriars House, The Parsonage, Manchester M3 2JA
Brussels 010 322-640 7151/71 Avenue Louise 327, Boite 4, 1050 Bruxelles

2368 **Specialist Computer Recruitment Ltd**

CONSULTANT ANAL/PROGS LONDON c. £11,500 Bill
You should have experience of project systems design and be able to program in COBOL.

ANALYST/PROGRAMMERS W. MIDDLESEX £7,000-£10,000 Peter
Two years plus of solid experience including COBOL.

SALES PEOPLE ALL AREAS O.E.£18,000 + Car Bill
Hardware, Software or Bureau Sales. Good track record required.

DOS/VS SYSTEMS PROG W. MIDDLESEX to £9,500 + useful perks Peter
Help install a 4341 with VSE under VM in this go-ahead environment.

SYSTEMS ANALYSTS LONDON to £9,000 Bill
Three years' experience of Systems Design. Co. uses Real-time, CICS and Database.

TRAINEE/JUNIOR ANALS N. LONDON to £8,000 Peter
Well experienced Programmers or Anal/Progs will be re-trained.

PROGRAMMERS LONDON to £7,500 Bill
Two years' experience of PL1 or Assembler. Learn CICS and Database.

FORTRAN PROGRAMMERS LONDON £7,000-£8,500 Peter
Oil company requires min. two years' FORTRAN. Exciting developments.

FOR MORE INFORMATION ON THESE AND OTHER VACANCIES TELEPHONE:
01-836 8087
Peter Barson or Bill Taylor
Barson, Taylor and Ward, Computer Personnel Consultants, 107 Jermyn Street, London SW1Y 6EE (2300)

BARSON TAYLOR & WARD

KING'S COLLEGE LONDON
COMPUTER UNIT

A SYSTEMS PROGRAMMER

is required to complete a small team of programmers providing a central service for both teaching and research throughout the College.

The successful candidate will be a graduate prepared to take a keen interest in all aspects of system support, and to work closely with other members of the systems programming team to provide a stable and reliable operating system.

The appointment will be made within the Academic-Related Salary Scale (O.R.S. 1S), currently £4402-£7410 p.a. plus £740 p.a. London Allowance, depending on age and experience. Contribution to the Universities Superannuation Scheme (USS) is compulsory.

Further particulars are obtainable from the Computing Manager, King's College London, Strand, London WC2R 2LS, to whom completed applications, stating age, qualifications and experience, together with the names of two referees, should be sent by Friday, 12 September 1980. (Ref: 225726) (0397)

RPG11 Analyst Programmer

Develop On-Line Systems on an IBM 38

UECL design and manufacture high technology components for a variety of applications in the electronics industry.

Already a world leader in this highly competitive market, we're now about to embark on an intensive programme of planned expansion which creates the need to appoint an RPG11 Analyst Programmer to join our experienced DP team.

With UECL your main task will be the development of new on-line systems. To help you achieve this, we plan to upgrade our present IBM System 3 Model 12 installation to the exciting new IBM System 38. Full training in RPG111 will be given.

In terms of rewards, you'll find UECL hard to beat.

We'll offer you a substantial initial salary, and we'll back that up with a full range of attractive benefits – including paid overtime.

If you're confident that you have the experience to develop new on-line systems, make a reverse charge call to David Silsbury our DP Manager any evening this week on High Wycombe (0494) 30590.

Alternatively, contact John Fordham, our Personnel Services Manager, at the address below to arrange an immediate interview.

Ultra Electronic Components Limited,
Fassetts Road, Loudwater, High Wycombe, Bucks.
Tel: High Wycombe (0494) 26233

DOWTY UECL

BOROUGH OF HOVE
Borough Treasurer's Department

B/57 SYSTEMS ANALYST/PROGRAMMER

(£6873-£7722) Salary award pending

Applicants must be trained COBOL Programmers and should have at least two years' practical computer experience. A working knowledge of PLAN will be considered an additional advantage.

We are currently operating an ICL 2903 Computer with Magnetic Tape EDS 60s Train Printer and Direct Data Entry Equipment. Future plans include enhancement to 2904 with on-line facilities, and experience in a communications environment will be beneficial.

Five day week (37 hours), flexible working hours. Five weeks' annual holiday. Current year holiday arrangements will be met. Fringe benefits include payment of full removal expenses and lodging allowance. Contribution of up to £750 towards legal, etc., expenses and disturbance costs in moving house. Temporary housing accommodation may be available. The post carries a casual user car allowance.

Application forms available from Chief Personnel Officer, Town Hall, Norton Road, Hove, Sussex, BN3 4AH. Telephone B'ton 775400, Ext. 37.

CLOSING DATE: AUGUST 28, 1980.

VACANCIES
MIDLANDS & NORTH

LEEDS
SYSTEMS ANALYST to £7,500
This large company requires an experienced Analyst with a programming background. Attractive fringe benefits + relocation.

MANCHESTER
PROGRAMMER to £6,500
Programmer required with at least 18 months experience of COBOL or ASSEMBLER for interesting vacancy. Opportunity to gain analysis experience.

MIDLANDS
SYSTEMS ANALYST to £8,000
A commercial IBM installation requires a Systems Analyst with minimum of 18 months experience.

PROGRAMMER to £6,500
COBOL Programmer with at least 12 months experience. IBM background an advantage.

Many other interesting vacancies are available within a 100 mile radius of Manchester.

Please telephone Christy or Laire on 061-428 3285/6 or Poynton 877813 after 6 p.m. and at weekends, or write to: (2175)

CW computer staff

★HERTS.★
design engineers
10K+ people in places 07073 34886 (2394)

★HERTS.★
Proj. man. with s/w house exp. + on-line management.
12.5K people in places 07073 34886

TRAFFORD METROPOLITAN BOROUGH
BOROUGH TREASURER'S DEPARTMENT

SENIOR COMPUTER OPERATOR

Tech. 3. £5153-£5771 including 12½% shift allowance

The Authority's computer centre operates an IBM 3031 at present running under DOS V/S and VM/370 with Power V/S and CICS V/S. The successful applicant will have experience of VM/370 and DOS V/S and also basic working knowledge of JCL. A two-shift system is operated, the shifts being 07.30-14.45 and the other 14.15-21.30. The Authority has a rapidly expanding CICS V/S system and also an expanding data base system.

Application forms and further information from Miss S. Dawson, Tel: 061-969 6161 ext. 242

Application forms returnable to: The Borough Treasurer, P.O. Box 10, Warbrick House, 35/37 Washway Road, Sale, Cheshire. Closing date 29th August

(Pay Award Pending 1.7.80)

Hardware/Software Specialists

Modular Computer Services is a world leader in the manufacture and provision of mini computer systems to the industrial and scientific market. In particular we specialise in process control and communications. Over the last eighteen months we have doubled our installed base in Europe and anticipate similar substantial growth over the next eighteen months. To enhance two of the groups which provide technical expertise to the field, we are looking for suitably qualified staff in the following areas:

Special Systems Consultants £8,000–£11,000 p.a.

The special systems group is responsible for the design and implementation of non-standard systems, either HARDWARE or SOFTWARE, and many of the projects involve real-time operating systems and communications. It is a dynamic environment which requires individuals capable of devising solutions to suit customers' needs, where the highest levels of reliability and performance are critical. Suitable applicants will have in-depth experience, either hardware or software or a combination of both, on sophisticated computer systems. Of specific interest is software experience of operating systems, mainframe front-ending or emulators, and hardware experience in the design or development of digital equipment, particularly in communications systems.

Product Support Analysts £9,500 p.a. + car

The Product support group provides the highest level of technical support to customer service organisations throughout Europe. Their responsibilities include the introduction of new products to the field, together with the recommendation and participation in training programmes. In addition, as software specialists, they will implement maintenance philosophies and provide support in the solution of complex problems. Limited travel in Europe will be required. Suitable applicants will have detailed experience of resolving technical software problems, particularly on sophisticated systems such as real-time operating systems, systems software and communications.

Modcomp benefits are highly competitive including a non-contributory pension, free life assurance and BUPA. If you are able to actively contribute to our success then contact
SUE HAMPSON on 0734 788711 or send a detailed resume to MODCOMP, MOLLY MILLARS LANE, WOKINGHAM, BERKSHIRE.

2373

MODCOMP

MYRIAD

COMMUNICATIONS SYSTEMS INTERNATIONAL SUPPORT

If you are a GRADUATE with 18 months/two years in industry behind you, you may now feel that the time is right to broaden your experience and to make a positive move into a position which will really stretch your established skills. As a world leader in its field our client is well placed to offer a demanding career in a rapidly expanding sector of the computer industry.

FULL TRAINING to the highest standards will be provided if you can offer the basis on which to build. You will then become responsible for providing a high-level of specialist support and consultancy regarding a number of new products, shortly to be announced, throughout the U.K. and Europe.

£7,000-£10,000

Your background:
- ★ Relevant numerate degree.
- ★ Digital Electronics design.
  or
- ★ Control Software development.
- ★ Micro-processor application.
  or
- ★ Data-communications protocols.

PACKET SWITCHED NETWORKS
MICRO BASED PRODUCTS
HIGH-SPEED DATA TRANSMISSION
INTERNATIONAL NETWORKING

The Rewards:
- ★ Excellent commencing salaries.
- ★ Five weeks' annual leave.
- ★ Comprehensive pension/life assurance.
- ★ Relocation package.
- ★ Sports and Social facilities.

Ref. SW2/1408/CW.

SEND TO (NO STAMP) MYRIAD APPOINTMENTS LIMITED FREEPOST, LONDON EC4B 4AA
I am interested in Ref.
Name
Address
Tel Day Evening

MYRIAD APPOINTMENTS LIMITED
30 Fleet London EC4Y 1AA Telephone 01-353 0981 24 hours
(2370)

VaRiEtY

IN SYSTEMS CONSULTANCY COMES NATURALLY WITH US

It's not just a question of anything for a change. Systems Consultants who join us here at Sperry Univac find we have the projects and the philosophy that can add a lot of spice to a professionals' life. If you're good we're glad to see you, and put ourselves out to enhance your career in a variety of ways.

At present we are engaged in a five year £ multi-million project in automated office systems.

We now need 4 people who will spend the majority of their time in on-line development, working principally with COBOL, though we would expect you to display sufficient agility to meet the demands that innovation and variety require.

You must have 5-10 years comprehensive experience including database techniques and be able to communicate effectively with all levels of staff.

Based in our North London headquarters we have no doubt that you will find the conditions and atmosphere as stimulating as the variety of challenge. And the range of opportunities for career development will follow naturally.

For more information about this exciting opportunity, please telephone Maureen Peachey on (01) 961 6444 or write to her at Sperry Univac, Brentfields, Stonebridge Park, London NW10 8LS. quoting reference CW 1683.

SPERRY UNIVAC

We'll listen to you–because you're our future

SERVICE ENGINEER – UNIQUE

London/Home Counties — Start £7,500 + car

Unique Company — World's fastest growing computer manufacturer — 3-fold increase for the last 4 years — sales now 'taking off' in the U.K.

Unique Product — High cost/performance range — unparalleled MTBF — no direct competitors.

Unique Benefits — Ground floor opportunities in UK — high reliability = quality engineers — shares in the company — training in California — friendly, professional leadership — rapid expansion = opportunities in support, management, sales etc.

Unique Opportunity — Call our service engineer consultant today for details of — Company share scheme, BUPA, N/C pension, overtime, call-out 2 litre car plus £7,500 and more if you have minicomputer experience.

Ref: EK2194

2373

01-549 6441 (Day)
04865 3014 (after 7.30 p.m.)

AB EXECUTIVE (KINGSTON) LTD.

An exceptional opportunity to join a rapidly expanding group of microcomputer sales outlets

DISTRICT MANAGERS FOR CURRYS MICRO-SYSTEMS - £8,000/£9,000 + CAR + PERFORMANCE-RELATED BONUS

We expect our new district managers to earn well into five figures by taking responsibility for management of our sales efforts in five regions of the country: **The North; The North West; The Midlands; London; The South West.**

The Currys Group is setting-up specialist, expert microcomputer sales outlets within Currys Shops. We've called them "Micro-C."

As well as branch salesmen there will be field sales executives.

The District Managers will supervise these sales functions, motivate their staff, implement reporting systems and share in success through the performance-related bonus.

They will report to our regional sales managers.

Experience in sales management, sales experience in computing and knowledge of business accounting and EDP is the background we require of these key executives who we think will be in their mid-thirties.

If you are looking for real career prospects with your next move, please write, enclosing a full c.v., to:

Linda Burrow
CURRYS MICRO-SYSTEMS
653 London Road
High Wycombe
Bucks, HP11 1EZ

(2309)

micro-C

Computer Auditing

2 POSTS—1 in London—£9,691-£10,866
1 in Reading—£8,883-£9,858

Currently the Authority operates twin IBM 370/148's which support a large teleprocessing network and an ICL 1904S providing a bureau service to the Authority. It is planned to develop a wide range of new applications for implementation on PRIME computers soon to be acquired.

E.D.P. audit specialists are needed to carry out the full range of computer audit activities, especially the review of new applications, the examination of the operation and security of the Authority's computer installation and the development of audit software.

2 vacancies have arisen, one being based in London and the other in Reading, although both post-holders will be expected to visit other offices within the area of the Authority. Candidates should be experienced computer analysts/programmers or qualified accountants with a sound practical knowledge of computing gained either in the Public or Private Sector. The ability to criticise constructively and communicate effectively is considered essential.

Benefits include a superannuation scheme, generous holidays, staff canteen, good social and sporting activities.

Applications giving full details of qualifications and experience, together with the names of two referees, should be submitted to the Director of Finance, Nugent House, Vastern Road, Reading, Berks, by the 22 August, 1980.
Telephone: 01-3489 3246

(2318)

Thames Water

ANALYST PROGRAMMERS

REAL-TIME SYSTEMS

JOHN BELL, an expanding Systems and Software house, require additional staff with 1 to 3 years experience of design or programming for real-time systems. Of particular interest is experience in one or more of the following:

GEC4000 — PDP11
CORAL 66 — MASCOT
Micro Systems
Design of Industrial, Defence or Telecommunications Systems

Salaries are in the range of £7-£9K, or possibly higher for the ideal candidate.

Enquiries are also welcome from anyone believing they can make a significant contribution to our business. To investigate these career positions further, contact Mike Ford on Fleet (02514) 28014 or send details of previous experience to:

(2331)

John Bell | Technical Systems

DISTRIBUTED SYSTEMS LIMITED

RECRUITMENT DIVISION

Due to our expansion in the life assurance sector D.S.L. require:

LIFE ASSURANCE CONSULTANTS/ANALYSTS

We offer highly attractive rates with likely extensions to initial period

WE REQUIRE:

1) Competence in dealing with users at a business level.
2) Ability to relate to development staff at a design level.
3) Actuarial or valuation experience would be an advantage but is not essential.

THESE ARE INTERESTING ASSIGNMENTS IN THE IMPLEMENTATION OF A MAJOR ON LINE SYSTEM

PLEASE ASK FOR DAVE PALMER OR JIM HOWLEY
70 Borough High Street, London SE1 1XF
Tel: 01-403 3456 1668

Lothian Regional Council
NAPIER COLLEGE OF COMMERCE AND TECHNOLOGY

LECTURER A IN COMPUTER STUDIES OR DATA PROCESSING

Salary on Scale: £5190-£9156 (BAR) – £9840 (under review)

required in the Department of Computer Studies to teach either computer studies or systems design to degree, diploma and professional qualification students. Experience in commercial industry or research in a team implementing computer-based systems is required. A commitment to research and/or consultancy is an essential aspect of staff activity and the person appointed will be expected to develop work related to the courses offered by the department.

Applicants must possess an honours degree, or equivalent professional qualification. Membership of the BCS together with good basic qualifications may be acceptable.

Application forms and further particulars from:
The Administrative Officer (Personnel)
Napier College of Commerce and Technology
Colinton Road, Edinburgh EH10 5DT

We have been retained by our Client to recruit highly successful Sales Executives for their specialist Point of Sale and Insurance Divisions, to market a highly versatile range of turnkey solutions across a broad spectrum of commerce.

As a young and dynamic, privately owned British Company, their growth rate has exceeded all expectations, truly establishing them in this highly competitive market place. Thus offering to those who can demonstrate the commitment and enthusiasm, an excellent progression.

Sales Executives - MIDLANDS

POINT of SALE — c £16,000

This solution has been specifically designed for the cash and carry and wholesale market place, where its features are flexibility, reliability and sophistication at the right price.

Ideally, you should be currently selling computer systems, well versed in POS and distribution, and able to demonstrate an above average knowledge of this market area. A successful track record to-date is essential.

Remuneration is by way of an excellent base salary, negotiable guarantee, plus a commission scheme designed to give an above average and realistic earning package. A company car and full expenses are also provided.

INSURANCE — c £14,000

This is a unique, low cost computer solution for the Insurance Broker. Devised by Insurance and Computing Experts offering reliability, flexibility and competitive price as its main features.

You will probably be employed by a Manufacturer of small business systems and be involved in their sales operation to the office environment. A knowledge of Insurance practice or Broking would also be desirable but is not essential. (Also someone from within the Insurance or Broking area would be considered, as sales training is available). All candidates must be able to demonstrate a successful track record to-date.

Remuneration is by way of an excellent base salary, negotiable guarantee plus a commission scheme designed to give an above average and realistic earning package. A company car and full expenses are also provided.

For an immediate and confidential interview, where you will be supplied with full company information, contact;
CHRIS FRY ON 021-236 3781 (24 hour answering service)
OR 021-742 1992 (evenings and weekends)
Candidates are invited to submit a Curriculum Vitae, where confidentiality is guaranteed.

SCR

London 01-935 0871 3 Mandeville Place, Wigmore Street, London W1M 5LB
Birmingham 021-236 3781 35-37 Great Charles Street, Queensway, Birmingham B3 3JY
Manchester 061-833 0427 Blackfriars House, The Parsonage, Manchester M3 2JA
Brussels 010 322-640 7151/71 Avenue Louise 327, Boite 4, 1050 Bruxelles

Specialist Computer Recruitment Ltd

Computing Services Association

2367

DISTRIBUTED SYSTEMS LIMITED

RECRUITMENT DIVISION

Due to our expansion in the life assurance sector D.S.L. require:

LIFE ASSURANCE CONSULTANTS/ANALYSTS

We offer highly attractive rates with likely extensions to initial period

WE REQUIRE:

1) Competence in dealing with users at a business level.
2) Ability to relate to development staff at a design level.
3) Actuarial or valuation experience would be an advantage but is not essential.

THESE ARE INTERESTING ASSIGNMENTS IN THE IMPLEMENTATION OF A MAJOR ON LINE SYSTEM

PLEASE ASK FOR DAVE PALMER OR JIM HOWLEY
70 Borough High Street, London SE1 1XF
Tel: 01-403 3456 1668

Sales Bit

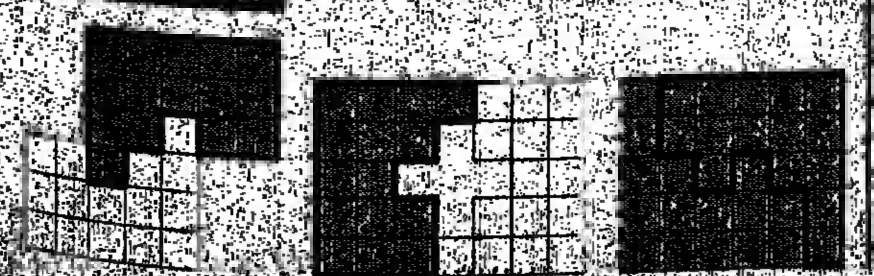
TRADER is on holiday for two weeks. Sales Bit will be resumed on his return.

BOX Nos.

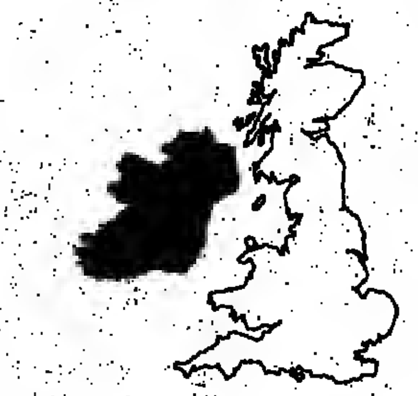
Box number replies should be addressed to:

Box No,
c/o Computer Weekly
Dorset House
Stamford Street
London SE1 9LU

Puzzle Answer



IRISH RECRUITMENT FEATURE



The next IRISH RECRUITMENT feature will be **on September 4th, 1980.**

Don't miss this SPECIAL SECTION accompanied by Editorial for the Best Jobs in IRELAND.

For further details ring:
Owen Kelly on Manchester 061-872 8861
or
Ken Walford on 01-261 8097

COMPUTER WEEKLY